

JUN 5 REC SEARCH REQUEST FORM

Pat. & T.M. Office Scientific and Technical Information Center

Requester's Full Name: Sin J. Lee Examiner #: 76060 Date: 6-5-06
Art Unit: 1752 Phone Number 302-1333 Serial Number: 101765,919
Mail Box and Bldg/Room Location: 9C15 (Rm) Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: P12. See B.6.

Inventors (please provide full names): _____

Earliest Priority Filing Date: _____

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Please search for a polymer that
contains the moiety of (1a) in cl. # 14.

~~PLEASE DO NOT~~

(Please do not worry about
formulas (A) - (B)
unless too many hits)

STAFF USE ONLY

Type of Search

Vendors and cost where applicable

Searcher: <u>274</u>	NA Sequence (#) _____	STN <u>\$ 351</u>
Searcher Phone #: _____	AA Sequence (#) _____	Dialog _____
Searcher Location: _____	Structure (#) <u>2</u>	Questel/Orbit _____
Date Searcher Picked Up: _____	Bibliographic _____	Dr. Link _____
Date Completed: <u>6/6/06</u>	Litigation _____	Lexis/Nexis _____
Searcher Prep & Review Time: <u>10</u>	Fulltext _____	Sequence Systems _____
Clerical Prep Time: <u>10</u>	Patent Family _____	WWW/Internet _____
Online Time: <u>45</u>	Other _____	Other (specify) _____

Access DB# 192049

JUN 5 REC-3

SEARCH REQUEST FORM

Pat. & T.M. Office Sci

Scientific and Technical Information Center

Requester's Full Name: Sin J. Lee Examiner #: 76060 Date: 6-5-06
Art Unit: 1752 Phone Number 302-1333 Serial Number: 101765, 919
Mail Box and Bldg/Room Location: 9C15Cen Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Plt: All B.B.

Inventors (please provide full names): _____

Earliest Priority Filing Date: _____

**For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

Please Search for a polymer having
the moiety of (3a) in Cl. # 14.
(2a) or

(Please do not worry about formulas (4)-(8) unless too many hits)

STAFF USE ONLY

Searcher: 27

Searcher Phone #: _____

Searcher Location: _____

Date Searcher Picked Up: _____

Date Completed: 6/6/06

Searcher Prep & Review Time: 16

Clerical Prep Time: 10

Online Time: 9.3

Type of Search

NA Sequence (#)_____

AA Sequence (#)_____

Structure (#) 2

Bibliographic _____

Litigation. _____

Fulltext

Patent Family

Other . . .

Vendors and cost where applicableSTN \$ 352

Dialog _____

Questel/Orbit

Dr.Link _____

Lexis/Nexis _____

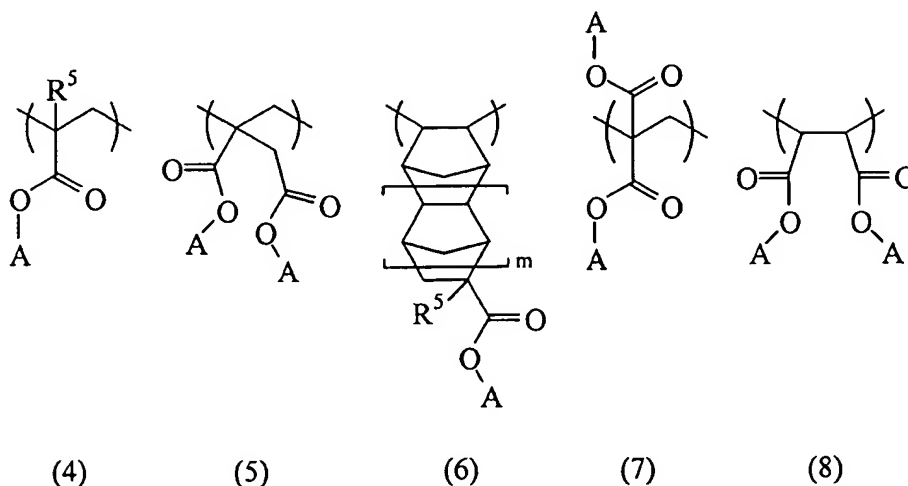
Sequence Systems

WWW/Internet

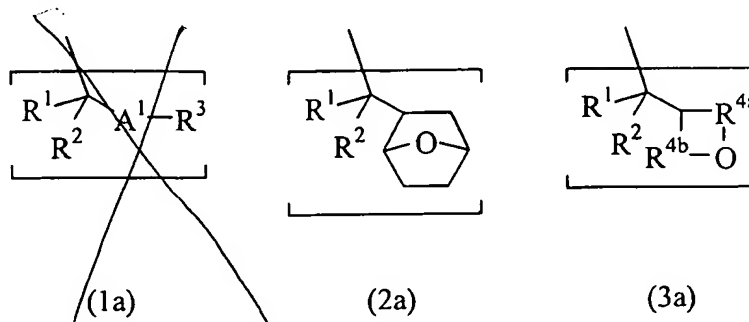
Other (specify) _____

13. (Original) The pattern forming process of claim 11 wherein the substrate bears thereon an underlay on which the coating of the resist composition is formed, said process further comprising the step of treating the underlay by etching with a halogen gas containing chlorine or bromine, after the resist pattern formation.

14. (New) A polymer comprising recurring units containing silicon and recurring units of at least one type selected from the general formulae (4) to (8):



wherein R^5 is hydrogen or methyl, m is 0 or 1, A is a group selected from the following formulae (1a), (2a) and (3a), a plurality of A 's may be the same or different,



wherein A¹ is a divalent group selected from furandiyl, tetrahydrofurandiyl and oxanorbornanediyl, R¹ and R² are independently selected from straight, branched or cyclic monovalent hydrocarbon groups of 1 to 10 carbon atoms, or R¹ and R² taken together may form an aliphatic hydrocarbon ring with the carbon atom to which they are attached, provided that in formula (2a), R¹ and R² taken together form an aliphatic hydrocarbon ring with the carbon atom to which they are attached, and R³ is hydrogen or a straight, branched or cyclic monovalent hydrocarbon group of 1 to 10 carbon atoms which may contain a hetero atom, and R^{4a} and R^{4b} each are a single bond or an alkylene or alkenylene group of 1 to 4 carbon atoms, the total number of carbon atoms in R^{4a} and R^{4b} being from 3 to 6.



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 Alexandria, Virginia 22313-1450
 www.uspto.gov



Bib Data Sheet

CONFIRMATION NO. 4118

SERIAL NUMBER 10/765,919	FILING DATE 01/29/2004 RULE	CLASS 430	GROUP ART UNIT 1752	ATTORNEY DOCKET NO. 0171-1058P
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APPLICANTS

Jun Hatakeyama, Niigata-ken, JAPAN;
 Takanobu Takeda, Niigata-ken, JAPAN;
 Osamu Watanabe, Niigata-ken, JAPAN;

** CONTINUING DATA ***** None SJL

** FOREIGN APPLICATIONS *****
 JAPAN 2003-021416 01/30/2003) SJL
 JAPAN 2003-194033 07/09/2003)

IF REQUIRED, FOREIGN FILING LICENSE GRANTED
 ** 08/18/2005

Foreign Priority claimed <input checked="" type="checkbox"/> yes <input type="checkbox"/> no	STATE OR COUNTRY JAPAN	SHEETS DRAWING 2	TOTAL CLAIMS 13	INDEPENDENT CLAIMS 4
35 USC 119 (a-d) conditions met <input checked="" type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> Met after Allowance				
Verified and Acknowledged <i>[Signature]</i> SJL Examiner's Signature Initials				

ADDRESS
 02292
 BIRCH STEWART KOLASCH & BIRCH
 PO BOX 747
 FALLS CHURCH, VA
 22040-0747

TITLE
 Polymer, resist composition and patterning process

FILING FEE RECEIVED	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:	<input type="checkbox"/> All Fees
		<input type="checkbox"/> 1.16 Fees (Filing)
		<input type="checkbox"/> 1.17 Fees (Processing Ext. of time)

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SEL RN

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STR L4

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L7 50 S L4
L8 SCR 2043
L9 50 S L4 AND L8
L10 50 S L5 AND L8

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L14 STR L13

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L17 7 S L2 AND L16

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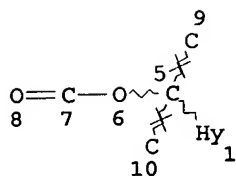
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L14 STR



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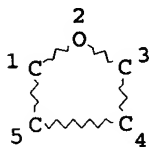
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NUMBER OF NODES IS 7

STEREO ATTRIBUTES: NONE

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STEREO ATTRIBUTES: NONE

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L24 ANSWER 1 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2006:339013 HCAPLUS

DOCUMENT NUMBER: 144:371702

TITLE: Thermally curable coating compositions forming easily removable cured films

INVENTOR(S): Iwashima, Tomoaki; Imai, Genji; Shirai, Masamitsu

PATENT ASSIGNEE(S): Kansai Paint Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 24 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2006096848

A2

20060413

JP 2004-283808

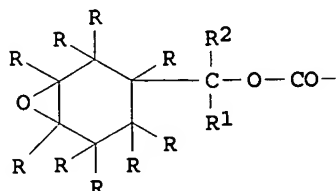
2004
0929

PRIORITY APPLN. INFO.:

JP 2004-283808

2004
0929

GI



I

AB Title compns. contain (a) COOH and/or hydroxyphenyl group-containing resins and (b) aliphatic epoxy group-containing tertiary ester compds. I (R = H, C1-6 alkyl, C1-4 alkoxy, halogen atom, CN, NO₂, all the R groups being independent; R₁, R₂ = C1-4 alkyl). A mixture of acrylic acid-Et acrylate-Me methacrylate-Aronix M 101 copolymer 100, bis{2-[(3,4-epoxy)-4-methylcyclohexyl]-2-propyl} terephthalate (prepared from α -terpineol, terephthaloyl dichloride, epoxidizing agent) 25, Bu₄NBr 0.7, and cyclohexanone 223 parts was bar-coated on a Cu foil to a 10- μ m thickness and cured at 140° for 30 min to form a coated showing THF resistance and easy removability (12% residual film, after heating to 200° for 10 min and soaking in THF for 10 min).

IT 881834-90-8P, Acrylic acid-bis[2-[(3,4-epoxy)-4-methylcyclohexyl]-2-propyl] terephthalate-ethyl acrylate-methyl methacrylate-Aronix M 101 copolymer 881834-91-9P, Acrylic acid-ethyl acrylate-methyl methacrylate-tris[2-[(3,4-epoxy)-4-methylcyclohexyl]-2-propyl] 1,3,5-benzenetricarboxylate-Aronix M 101 copolymer 881834-92-0P, Bis[2-[(3,4-epoxy)-4-methylcyclohexyl]-2-propyl] terephthalate-o-cresol-formaldehyde-o-hydroxybenzoic acid copolymer 881834-93-1P, o-Cresol-formaldehyde-o-hydroxybenzoic acid-tris[2-[(3,4-epoxy)-4-methylcyclohexyl]-2-propyl] 1,3,5-benzenetricarboxylate copolymer
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(cured; thermosetting coatings containing COOH and/or hydroxyphenyl-containing resins and aliphatic epoxy tertiary esters for easily removable cured films)

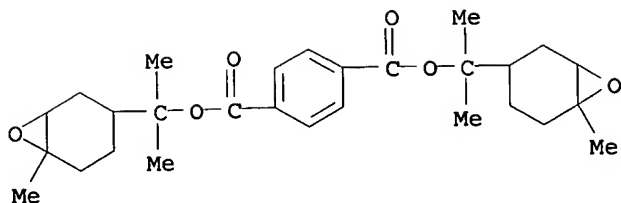
RN 881834-90-8 HCAPLUS

CN 1,4-Benzenedicarboxylic acid, bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] ester, polymer with ethyl 2-propenoate, methyl 2-methyl-2-propenoate, α -(1-oxo-2-propenyl)- ω -phenoxypropyl(oxy-1,2-ethanediyl) and 2-propenoic acid (9CI) (CA INDEX NAME)

CM 1

CRN 444143-79-7

CMF C28 H38 O6

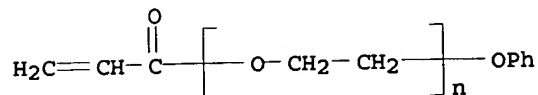


CM 2

CRN 56641-05-5

CMF (C2 H4 O)n C9 H8 O2

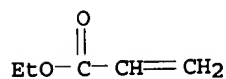
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CM 3

CRN 140-88-5

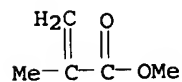
CMF C5 H8 O2



CM 4

CRN 80-62-6

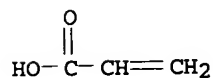
CMF C5 H8 O2



CM 5

CRN 79-10-7

CMF C3 H4 O2



RN 881834-91-9 HCAPLUS

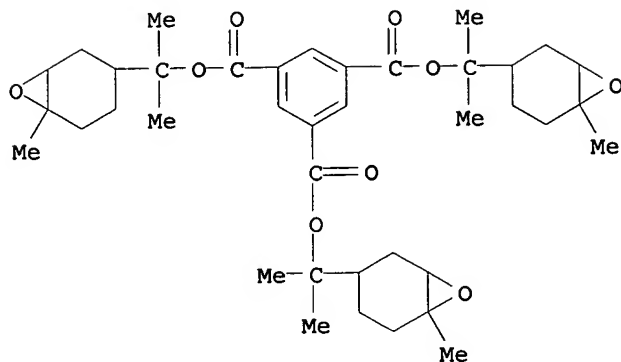
CN 1,3,5-Benzenetricarboxylic acid, tris[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] ester, polymer with ethyl 2-propenoate, methyl 2-methyl-2-propenoate, α -(1-oxo-2-propenyl)- ω -phenoxypoly(oxy-1,2-ethanediyl) and 2-propenoic

acid (9CI) (CA INDEX NAME)

CM 1

CRN 756819-39-3

CMF C39 H54 O9

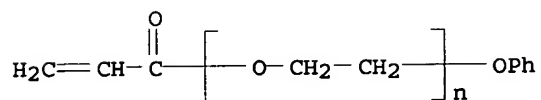


CM 2

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CMF (C2 H4 O)_n C9 H8 O2

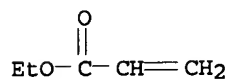
CCI PMS



CM 3

CRN 140-88-5

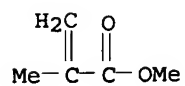
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CM 4

CRN 80-62-6

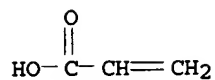
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CM 5

CRN 79-10-7

CMF C3 H4 O2



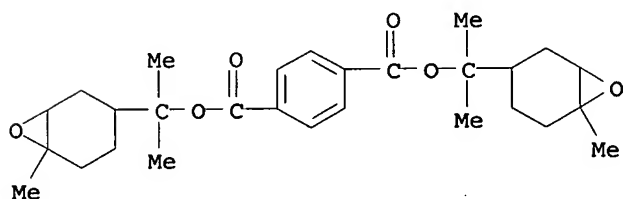
RN 881834-92-0 HCAPLUS

CN 1,4-Benzenedicarboxylic acid, bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] ester, polymer with formaldehyde, 2-hydroxybenzoic acid and 2-methylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 444143-79-7

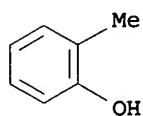
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CM 2

CRN 95-48-7

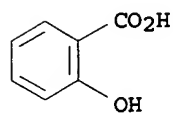
CMF C7 H8 O



CM 3

CRN 69-72-7

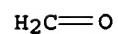
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CM 4

CRN 50-00-0

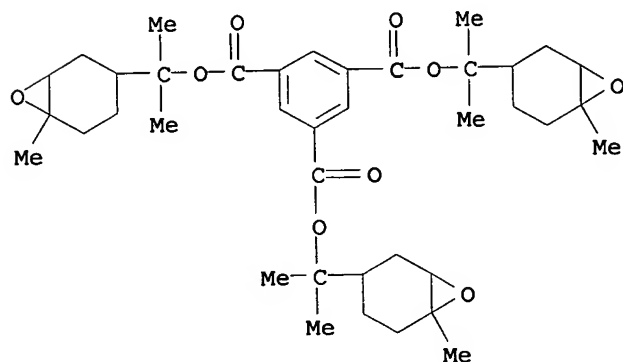
CMF C H2 O



RN 881834-93-1 HCAPLUS
 CN 1,3,5-Benzenetricarboxylic acid, tris[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] ester, polymer with formaldehyde, 2-hydroxybenzoic acid and 2-methylphenol (9CI) (CA INDEX NAME)

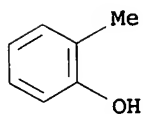
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CRN 756819-39-3
 CMF C39 H54 O9



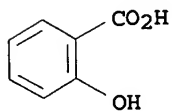
CM 2

CRN 95-48-7
 CMF C7 H8 O



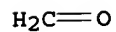
CM 3

CRN 69-72-7
 CMF C7 H6 O3



CM 4

CRN 50-00-0
 CMF C H2 O



CC 42-10 (Coatings, Inks, and Related Products)
 IT 881834-90-8P, Acrylic acid-bis[2-[(3,4-epoxy)-4-methylcyclohexyl]-2-propyl] terephthalate-ethyl acrylate-methyl methacrylate-Aronix M 101 copolymer 881834-91-9P, Acrylic acid-ethyl acrylate-methyl methacrylate-tris[2-[(3,4-epoxy)-4-methylcyclohexyl]-2-propyl] 1,3,5-benzenetricarboxylate-Aronix M 101 copolymer 881834-92-0P, Bis[2-[(3,4-epoxy)-4-methylcyclohexyl]-2-propyl] terephthalate-o-cresol-formaldehyde-o-hydroxybenzoic acid copolymer 881834-93-1P, o-Cresol-formaldehyde-o-hydroxybenzoic acid-tris[2-[(3,4-epoxy)-4-methylcyclohexyl]-2-propyl] 1,3,5-benzenetricarboxylate copolymer
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (cured; thermosetting coatings containing COOH and/or hydroxyphenyl-containing resins and aliphatic epoxy tertiary esters for easily removable cured films)

L24 ANSWER 2 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2006:168367 HCAPLUS

DOCUMENT NUMBER: 144:222558

TITLE: Crosslinkable radiation-sensitive compositions

for forming hard masks suitable for precise fine etching of electronic device substrates

INVENTOR(S): Sugita, Hikaru; Tanaka, Masato; Konno, Keiji;

Nomura, Nakaatsu; Shimokawa, Tsutomu

PATENT ASSIGNEE(S): JSR Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 24 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2006053404	A2	20060223	JP 2004-235695	2004 0813

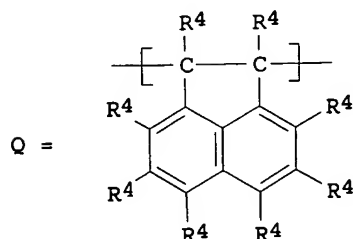
PRIORITY APPLN. INFO.:

JP 2004-235695

2004

0813

GI



AB The compns. contain photoacid generators, solvents, and copolymers having (A) epoxy-bearing structural repeating units expressed by [C(R1)(CO2CR2R3)CH2] [R1-2 = H, monovalent organic group free from epoxy group; R3 = monovalent organic group bearing epoxy group], and (B) acenaphthylene structural repeating units expressed by Q (R4 =

H, monovalent organic group free from epoxy group). The compns. may further contain crosslinking agents. Also claimed are hard masks made from the compns. Hard film patterns, formed by radiation hardening of the compns., are used as hard masks for etching substrates (made of silicon, aluminized silicon, etc.) underlying the hard masks, and the hard masks can be easily released off the substrates by low-temperature heating.

IT 875927-47-2P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(hard masks; radiation-crosslinkable composition containing acenaphthylene-epoxy acrylate copolymer for forming hard masks)

RN 875927-47-2 HCAPLUS

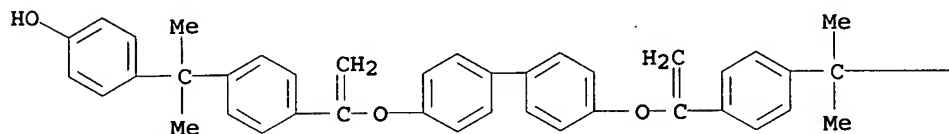
CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with acenaphthylene and 4,4'-[[1,1'-biphenyl]-4,4'-diylbis[oxyethenylidene-4,1-phenylene(1-methylethylidene)]]bis[phenol] (9CI) (CA INDEX NAME)

CM 1

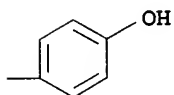
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CMF C46 H42 O4

PAGE 1-A



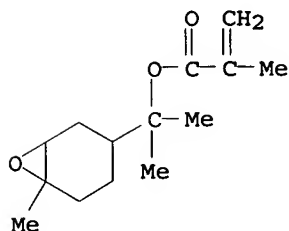
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CM 2

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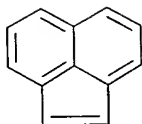
CMF C14 H22 O3



CM 3

CRN 208-96-8

CMF C12 H8



IT 875927-45-0P

RL: IMF (Industrial manufacture); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
 (in radiation-crosslinkable composition containing acenaphthylene-epoxy acrylate copolymer for forming hard masks)

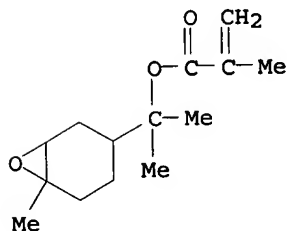
RN 875927-45-0 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, polymer with acenaphthylene and
 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl
 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 354801-90-4

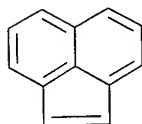
CMF C14 H22 O3



CM 2

CRN 208-96-8

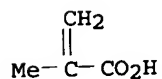
CMF C12 H8



CM 3

CRN 79-41-4

CMF C4 H6 O2



CC 74-4 (Radiation Chemistry, Photochemistry, and Photographic and
 Other Reprographic Processes)
 Section cross-reference(s): 38, 76
 IT 875927-47-2P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(hard masks; radiation-crosslinkable composition containing acenaphthylene-epoxy acrylate copolymer for forming hard masks)

IT 875927-45-0P

RL: IMF (Industrial manufacture); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(in radiation-crosslinkable composition containing acenaphthylene-epoxy acrylate copolymer for forming hard masks)

L24 ANSWER 3 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:609880 HCAPLUS

DOCUMENT NUMBER: 144:213144

TITLE: Photocrosslinking and redissolution properties of oligomers bearing photoamine generating groups and epoxy groups

AUTHOR(S):

Ohba, Tadahiro; Shimizu, Takayuki; Suyama, Kanji; Shirai, Masamitsu

CORPORATE SOURCE:

Department of Applied Chemistry, Osaka Prefecture University, 1-1 Gakuen-cho, Sakai, Osaka, 599-8531, Japan

SOURCE:

Journal of Photopolymer Science and Technology (2005), 18(2), 221-224

CODEN: JSTEEW; ISSN: 0914-9244

PUBLISHER:

Technical Association of Photopolymers, Japan

DOCUMENT TYPE:

Journal

LANGUAGE:

English

AB Co-oligomers bearing photoamine generating groups and terminal epoxy groups connected with thermally cleavable tertiary ester units were prepared. The photocrosslinking and redissoln. properties of these co-oligomers were studied. These co-oligomers had high decomposition temperature and generated pendant amino groups on irradiation at 254 nm. These films of co-oligomers became insol. in THF on irradiation followed by post-exposure-baking (PEB) at 130-180°C. On PEB treatment at above 200°C, the films became soluble in solvent because of thermal de-crosslinking of the tertiary ester moiety.

IT 875798-97-3

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(photocrosslinking and redissoln. properties of oligomers bearing photoamine generating groups and epoxy groups)

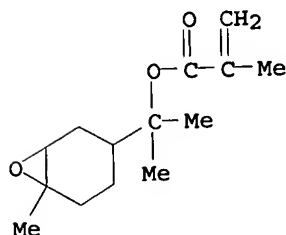
RN 875798-97-3 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with 1-(2-naphthalenyl)ethanone O-(1-oxo-2-propenyl)oxime (9CI) (CA INDEX NAME)

CM 1

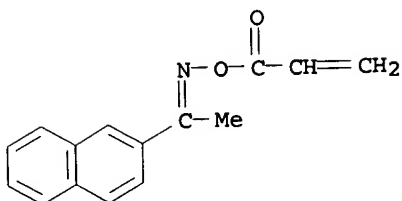
CRN 354801-90-4

CMF C14 H22 O3



CM 2

CRN 62051-34-7
CMF C15 H13 N O2



CC 35-8 (Chemistry of Synthetic High Polymers)

IT 875798-97-3

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(photocrosslinking and redissoln. properties of oligomers bearing photoamine generating groups and epoxy groups)

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 4 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:548864 HCAPLUS

DOCUMENT NUMBER: 143:212270

TITLE: Photocrosslinking and thermal degradation of epoxy-containing polymers using photobase generators

AUTHOR(S): Ohba, Tadahiho; Nakai, Daisuke; Suyama, Kanji; Shirai, Masamitsu

CORPORATE SOURCE: Department of Applied Chemistry, Osaka Prefecture University, Osaka, 599-8531, Japan

SOURCE: Chemistry Letters (2005), 34(6), 818-819

CODEN: CMLTAG; ISSN: 0366-7022

PUBLISHER: Chemical Society of Japan

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A new system consisting of a photobase generator and an oligomer bearing both epoxy and tertiary ester units was prepared as a photocrosslinkable and thermally de-crosslinkable polymer system. The sample film became insol. on UV-irradiation and followed by baking at 100°-160°. The crosslinked film became soluble in methanol when baked at 180°-200°.

IT 354801-91-5

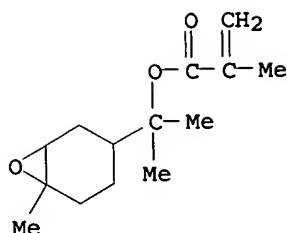
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(photocrosslinking and thermal degradation of epoxy-containing polymethacrylate using photobase generators)

RN 354801-91-5 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 354801-90-4
CMF C14 H22 O3



CC 35-8 (Chemistry of Synthetic High Polymers)

IT 354801-91-5

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(photocrosslinking and thermal degradation of epoxy-containing polymethacrylate using photobase generators)

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 5 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:368209 HCAPLUS

DOCUMENT NUMBER: 142:431682

TITLE: Radiation-curable jet-printing inks having good discharge and storage stability and printed matter therewith

INVENTOR(S): Sasa, Nobumasa

PATENT ASSIGNEE(S): Konica Minolta Medical & Graphic, Inc., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 20 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005112936	A2	20050428	JP 2003-346682	2003 1006

PRIORITY APPLN. INFO.:

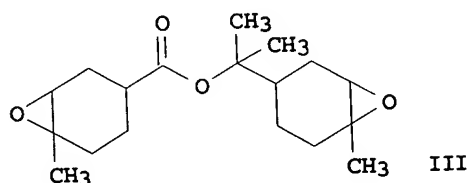
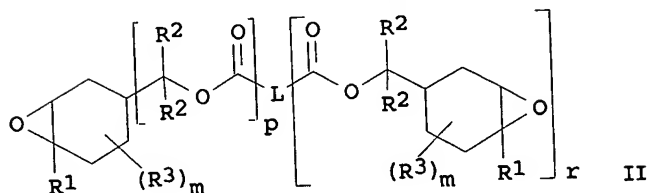
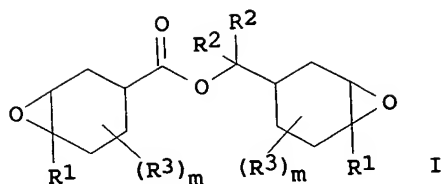
JP 2003-346682

2003
1006

OTHER SOURCE(S):

MARPAT 142:431682

GI



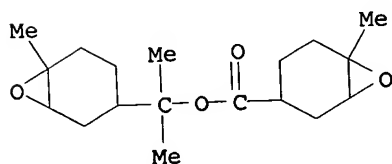
AB The inks contain alicyclic epoxide I and/or II [R1-R3 = substituent; m = 0-2; p = 0, 1; r = 1-3; L = C1-15 (r + 1)-valent linking group (containing S or O in the main chain) or single bond]. The inks may contain photocationic polymerization initiators, pigments, pigment dispersants, and satisfy viscosity (25°) 5-50 mPa-s. Thus, an ink containing epoxide III 30, OXT 221 (oxetane compound) 70, triethylene glycol divinyl ether 10, Solsperse 32000 (dispersant) 3, and Adeka Optomer SP 152 (triphenylsulfonium salt) 10, and Cu phthalocyanine 5 parts showed no viscosity increase on 1-mo storage at 100°. no precipitation on 1-mo storage at 25°, and having no or less irritating action on skins.

IT 850421-69-1P 850421-71-5P 850421-73-7P
850421-75-9P 850421-77-1P 850427-47-3P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(alicyclic epoxide-containing photocurable jet inks having good discharge and storage stability)

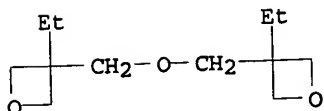
RN 850421-69-1 HCAPLUS
CN 7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 6-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with 3,3'-[oxybis(methylene)]bis[3-ethyloxetane] and 3,6,9,12-tetraoxatetradeca-1,13-diene (9CI) (CA INDEX NAME)

CM 1

CRN 850421-68-0
CMF C18 H28 O4

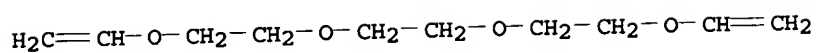


CRN 18934-00-4
CMF C12 H22 O3



CM 3

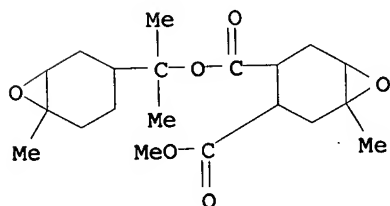
CRN 765-12-8
CMF C10 H18 O4



RN 850421-71-5 HCAPLUS
CN 7-Oxabicyclo[4.1.0]heptane-3,4-dicarboxylic acid, 1-methyl-, 3-methyl 4-[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] ester, polymer with 3,3'-[oxybis(methylene)]bis[3-ethyloxetane] (9CI) (CA INDEX NAME)

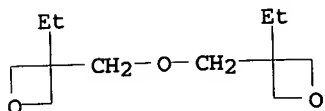
CM 1

CRN 850421-70-4
CMF C20 H30 O6



CM 2

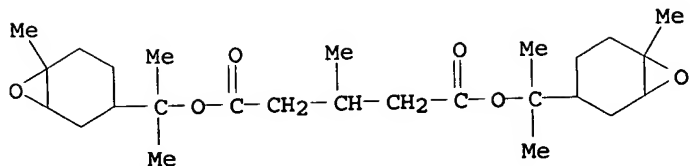
CRN 18934-00-4
CMF C12 H22 O3



RN 850421-73-7 HCAPLUS
CN Pentanedioic acid, 3-methyl-, bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] ester, polymer with 3,3'-[oxybis(methylene)]bis[3-ethyloxetane] (9CI) (CA INDEX NAME)

CM 1

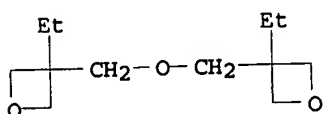
CRN 850421-72-6
CMF C26 H42 O6



CM 2

CRN 18934-00-4

CMF C12 H22 O3



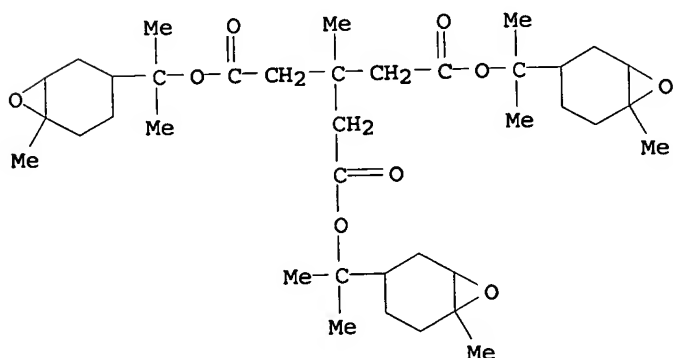
RN 850421-75-9 HCAPLUS

CN Pentanedioic acid, 3-methyl-3-[2-[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethoxy]-2-oxoethyl]-, bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] ester, polymer with 3,3'-[oxybis(methylene)]bis[3-ethyloxetane] and 3,6,9,12-tetraoxatetradeca-1,13-diene (9CI) (CA INDEX NAME)

CM 1

CRN 850421-74-8

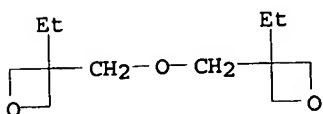
CMF C38 H60 O9



CM 2

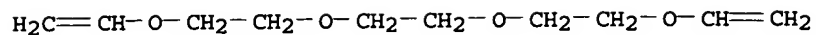
CRN 18934-00-4

CMF C12 H22 O3



CM 3

CRN 765-12-8
CMF C10 H18 O4

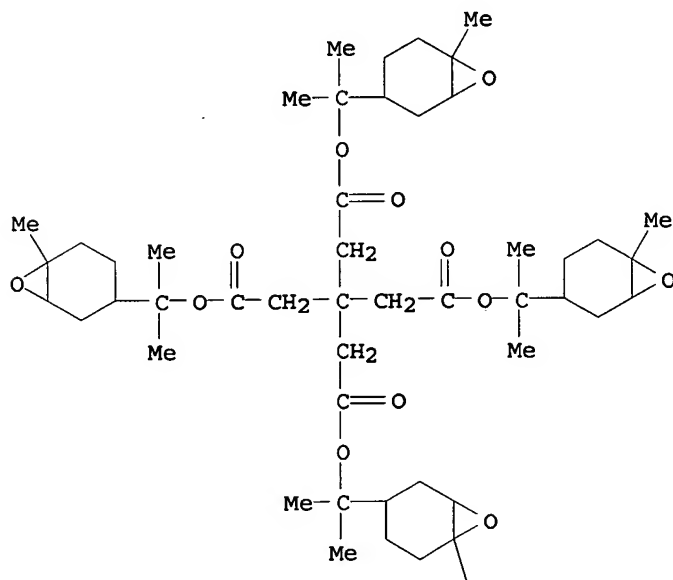


RN 850421-77-1 HCAPLUS
CN Pentanedioic acid, 3,3-bis[2-[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethoxy]-2-oxoethyl]-, bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] ester, polymer with 3-ethenyl-7-oxabicyclo[4.1.0]heptane, 3,3'-[oxybis(methylene)]bis[3-ethyloxetane] and 3,6,9,12-tetraoxatetradeca-1,13-diene (9CI) (CA INDEX NAME)

CM 1

CRN 850421-76-0
CMF C49 H76 O12

PAGE 1-A

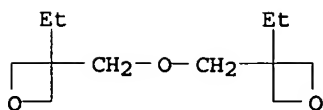


PAGE 2-A

Me

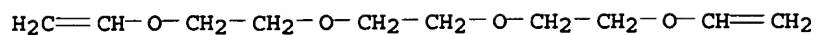
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CRN 18934-00-4
CMF C12 H22 O3



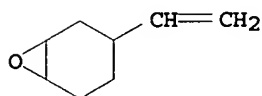
CM 3

CRN 765-12-8
CMF C10 H18 O4



CM 4

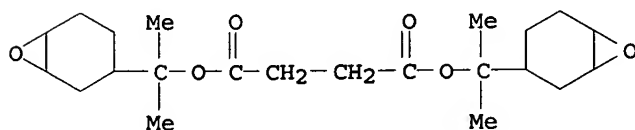
CRN 106-86-5
CMF C8 H12 O



RN 850427-47-3 HCAPLUS
CN Butanedioic acid, bis[1-methyl-1-(methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] ester, polymer with 3,3'-[oxybis(methylene)]bis[3-ethyloxetane] (9CI) (CA INDEX NAME)

CM 1

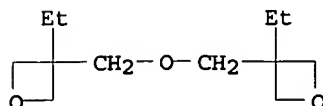
CRN 850427-46-2
CMF C24 H38 O6
CCI IDS



2 (D1-Me)

CM 2

CRN 18934-00-4
CMF C12 H22 O3



IC ICM C09D011-00
ICS B41J002-01; B41M005-00
CC 42-12 (Coatings, Inks, and Related Products)
Section cross-reference(s): 74
IT 850421-69-1P 850421-71-5P 850421-73-7P
850421-75-9P 850421-77-1P 850427-47-3P
RL: IMF (Industrial manufacture); TEM (Technical or engineered
material use); PREP (Preparation); USES (Uses)
(alicyclic epoxide-containing photocurable jet inks having good
discharge and storage stability)

L24 ANSWER 6 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:603452 HCAPLUS

DOCUMENT NUMBER: 141:261432

TITLE: Photocrosslinking system using multifunctional
epoxy crosslinkers having thermally degradable
properties

AUTHOR(S): Okamura, Haruyuki; Shin, Kazuo; Tsunooka,
Masahiro; Shirai, Masamitsu

CORPORATE SOURCE: Department of Applied Chemistry, Graduate
School of Engineering, Osaka Prefecture
University, Osaka, 599-8531, Japan

SOURCE: Journal of Polymer Science, Part A: Polymer
Chemistry (2004), 42(15), 3685-3696
CODEN: JPACEC; ISSN: 0887-624X

PUBLISHER: John Wiley & Sons, Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A novel thermally degradable photocrosslinking system was
investigated. Difunctional and trifunctional epoxides with
tertiary ester linkages were synthesized. When blended films of
epoxides and poly(vinyl phenol) or epoxides and poly(methacrylic
acid-co-Et methacrylate) with a photoacid generator were
irradiated and then baked at relatively low temps. (<100
°C), the films became insol. in solvents. The heating
conditions strongly affected the insol. fractions of the blends.
The insol. fractions of the blended films containing the trifunctional
epoxide were higher than the fractions of the films containing the
difunctional epoxide. The crosslinked films became soluble after
baking at relatively high temps. (>120 °C). The reaction
pathway of the blended system was studied with in situ Fourier
transform IR measurements.

IT 756819-40-6P 756819-41-7P 756819-43-9P
756819-44-0P

RL: PRP (Properties); SPN (Synthetic preparation); PREP
(Preparation)
(photocrosslinking system using multifunctional epoxy
crosslinkers having thermally degradable properties)

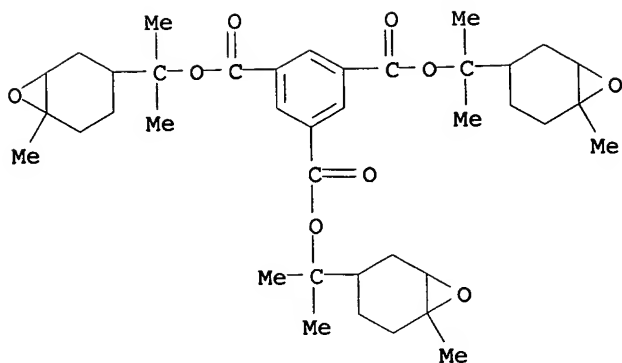
RN 756819-40-6 HCAPLUS

CN 1,3,5-Benzenetricarboxylic acid, tris[1-methyl-1-(6-methyl-7-
oxabicyclo[4.1.0]hept-3-yl)ethyl] ester, polymer with ethyl
2-methyl-2-propenoate and 2-methyl-2-propenoic acid (9CI) (CA
INDEX NAME)

CM 1

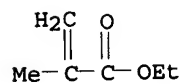
CRN 756819-39-3

CMF C39 H54 O9



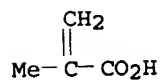
CM 2

CRN 97-63-2
CMF C6 H10 O2



CM 3

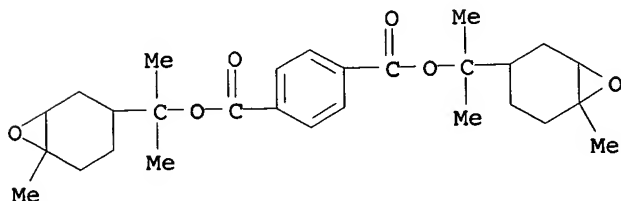
CRN 79-41-4
CMF C4 H6 O2



RN 756819-41-7 HCAPLUS
CN 1,4-Benzenedicarboxylic acid, bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] ester, polymer with ethyl 2-methyl-2-propenoate and 2-methyl-2-propenoic acid (9CI) (CA INDEX NAME)

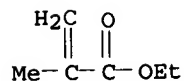
CM 1

CRN 444143-79-7
CMF C28 H38 O6



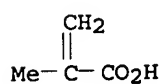
CM 2

CRN 97-63-2
CMF C6 H10 O2



CM 3

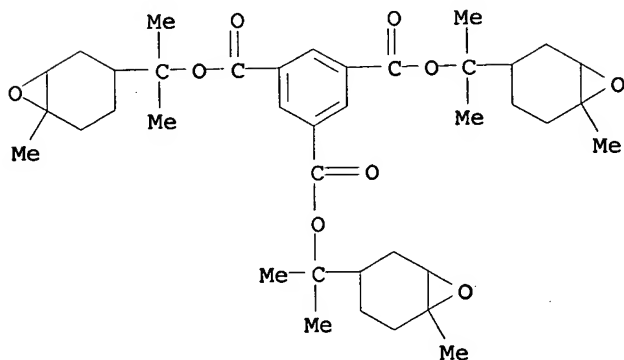
CRN 79-41-4
CMF C4 H6 O2



RN 756819-43-9 HCAPLUS
CN 1,3,5-Benzenetricarboxylic acid, tris[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] ester, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

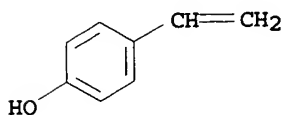
CM 1

CRN 756819-39-3
CMF C39 H54 O9



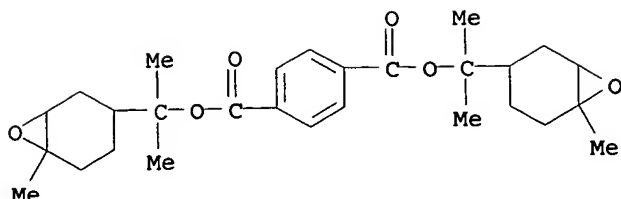
CM 2

CRN 2628-17-3
CMF C8 H8 O

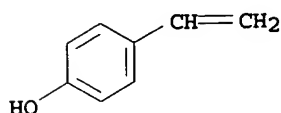


RN 756819-44-0 HCAPLUS
CN 1,4-Benzenedicarboxylic acid, bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] ester, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 444143-79-7
CMF C28 H38 O6

CM 2

CRN 2628-17-3
CMF C8 H8 OCC 37-6 (Plastics Manufacture and Processing)
IT 756819-40-6P 756819-41-7P 756819-43-9P

756819-44-0P

RL: PRP (Properties); SPN (Synthetic preparation); PREP
(Preparation)(photocrosslinking system using multifunctional epoxy
crosslinkers having thermally degradable properties)REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L24 ANSWER 7 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:454829 HCAPLUS

DOCUMENT NUMBER: 141:261168

TITLE: Thermal degradation of photo crosslinked
polymersAUTHOR(S): Shirai, Masamitsu; Morishita, Satoshi; Kawaue,
Akiya; Okamura, Haruyuki; Tsunooka, MasahiroCORPORATE SOURCE: Department of Applied Chemistry, Graduate
School of Engineering, Osaka Prefecture
University, Osaka, 599-8531, JapanSOURCE: ACS Symposium Series (2004), 874 (Polymers for
Microelectronics and Nanoelectronics), 236-250
CODEN: ACSMC8; ISSN: 0097-6156

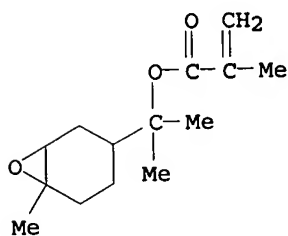
PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

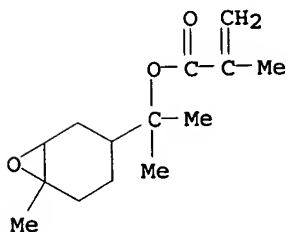
LANGUAGE: English

AB A novel monomer having both epoxy and thermally cleaveable tertiary ester moieties was synthesized and characterized. Homopolymer and copolymers with tert-Bu methacrylate, tert-butoxy styrene or styrene sulfonates were synthesized. On UV irradiation the polymer films containing photo acid generators became insol. in organic solvents. When the crosslinked polymer films were baked at 100-220 °C, they became soluble in methanol. The effective baking temperature was strongly dependent on polymer structure. The crosslinked polymers having styrenesulfonic acid ester units became soluble in water after bake treatments.

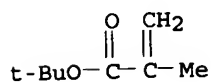
IT 354801-91-5P 401928-96-9P 401928-97-0P
 460085-60-3P 460085-61-4P 460085-62-5P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP
 (Preparation)
 (thermal degradation of photo crosslinked polymers)
 RN 354801-91-5 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, homopolymer (9CI) (CA INDEX NAME)
 CM 1
 CRN 354801-90-4
 CMF C14 H22 O3



RN 401928-96-9 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, 1,1-dimethylethyl ester, polymer with
 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl
 2-methyl-2-propenoate (9CI) (CA INDEX NAME)
 CM 1
 CRN 354801-90-4
 CMF C14 H22 O3

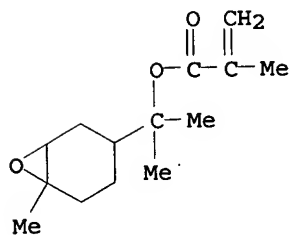


CM 2
 CRN 585-07-9
 CMF C8 H14 O2

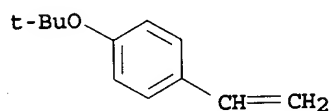


RN 401928-97-0 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with
 1-(1,1-dimethylethoxy)-4-ethenylbenzene (9CI) (CA INDEX NAME)

CM 1

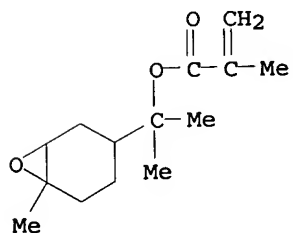
CRN 354801-90-4
CMF C14 H22 O3

CM 2

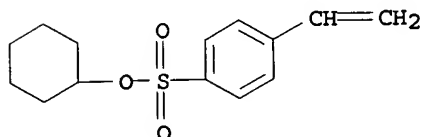
CRN 95418-58-9
CMF C12 H16 O

RN 460085-60-3 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with cyclohexyl 4-ethenylbenzenesulfonate (9CI) (CA INDEX NAME)

CM 1

CRN 354801-90-4
CMF C14 H22 O3

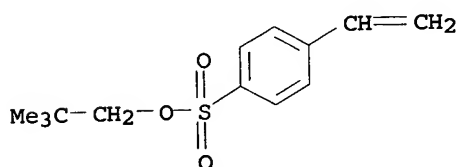
CM 2

CRN 211308-93-9
CMF C14 H18 O3 S

RN 460085-61-4 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with 2,2-dimethylpropyl 4-ethenylbenzenesulfonate (9CI) (CA INDEX NAME)

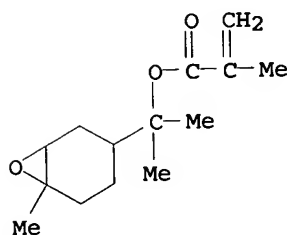
CM 1

CRN 443899-80-7
 CMF C13 H18 O3 S



CM 2

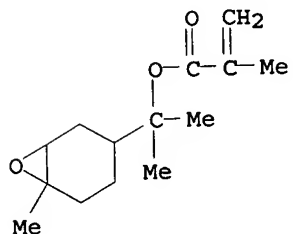
CRN 354801-90-4
 CMF C14 H22 O3



RN 460085-62-5 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with phenyl 4-ethenylbenzenesulfonate (9CI) (CA INDEX NAME)

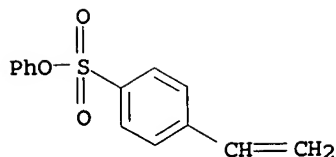
CM 1

CRN 354801-90-4
 CMF C14 H22 O3



CM 2

CRN 20996-57-0
 CMF C14 H12 O3 S



CC 35-8 (Chemistry of Synthetic High Polymers)

IT 354801-91-5P 401928-96-9P 401928-97-0P

460085-60-3P 460085-61-4P 460085-62-5P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(thermal degradation of photo crosslinked polymers)

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 8 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:738540 HCAPLUS

DOCUMENT NUMBER: 139:365370

TITLE: Photo-cross-linkable Polymers Having Degradable Properties on Heating

AUTHOR(S): Shirai, Masamitsu; Kawaue, Akiya; Okamura, Haruyuki; Tsunooka, Masahiro

CORPORATE SOURCE: Department of Applied Chemistry Graduate School of Engineering, Osaka Prefecture University, Sakai Osaka, 599-8531, Japan

SOURCE: Chemistry of Materials (2003), 15(21), 4075-4081

CODEN: CMATEX; ISSN: 0897-4756

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Photo-cross-linkable polymers having degradable properties on heating were described. Copolymers of esters or salts of p-styrenesulfonic acid with a novel monomer having both an epoxy moiety and a tertiary ester moiety were synthesized and characterized. Polymer films containing a photoacid generator became insol. in organic solvents on UV irradiation. The insol. fraction of the irradiated films was increased by post-exposure-baking at relatively low temps. (40-100 °C). When the cross-linked polymer films were baked at 120-200 °C, they became soluble in water. The effective bake temperature was dependent on the polymer structure. Thermal degradation of the cross-linked polymers was studied by TGA anal. and in situ FT-IR spectroscopy.

IT 460085-60-3P 460085-61-4P 460085-62-5P

476445-52-0P 622851-55-2P

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)

(photo-cross-linkable polymers having degradable properties on heating)

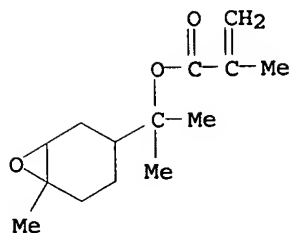
RN 460085-60-3 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with cyclohexyl 4-ethenylbenzenesulfonate (9CI) (CA INDEX NAME)

CM 1

CRN 354801-90-4

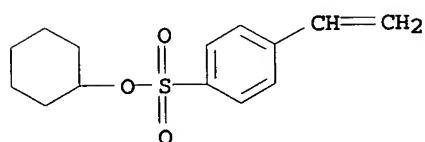
CMF C14 H22 O3



CM 2

CRN 211308-93-9

CMF C14 H18 O3 S



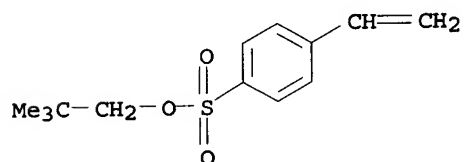
RN 460085-61-4 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with 2,2-dimethylpropyl 4-ethenylbenzenesulfonate (9CI) (CA INDEX NAME)

CM 1

CRN 443899-80-7

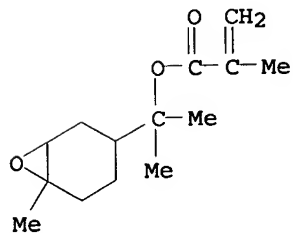
CMF C13 H18 O3 S



CM 2

CRN 354801-90-4

CMF C14 H22 O3



RN 460085-62-5 HCAPLUS

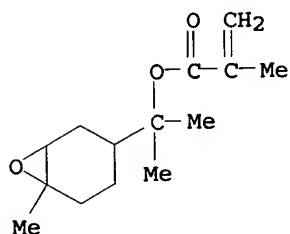
CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-

oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with phenyl
4-ethenylbenzenesulfonate (9CI) (CA INDEX NAME)

CM 1

CRN 354801-90-4

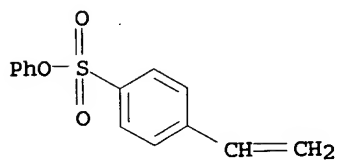
CMF C14 H22 O3



CM 2

CRN 20996-57-0

CMF C14 H12 O3 S



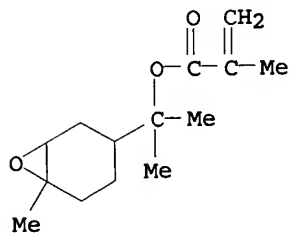
RN 476445-52-0 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with methyl
4-ethenylbenzenesulfonate (9CI) (CA INDEX NAME)

CM 1

CRN 354801-90-4

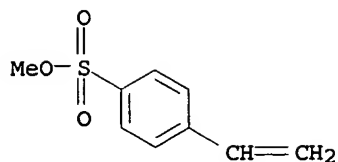
CMF C14 H22 O3



CM 2

CRN 16736-97-3

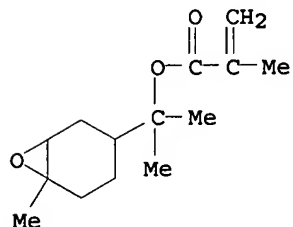
CMF C9 H10 O3 S



RN 622851-55-2 HCAPLUS
 CN 1-Butanaminium, N,N,N-tributyl-, salt with 4-ethenylbenzenesulfonic acid (1:1), polymer with 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 354801-90-4
 CMF C14 H22 O3

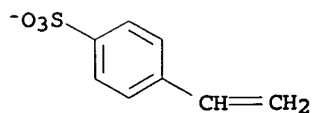


CM 2

CRN 151164-21-5
 CMF C16 H36 N . C8 H7 O3 S

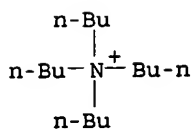
CM 3

CRN 46061-72-7
 CMF C8 H7 O3 S



CM 4

CRN 10549-76-5
 CMF C16 H36 N



IT 460085-60-3DP, photocrosslinked, thermal degraded

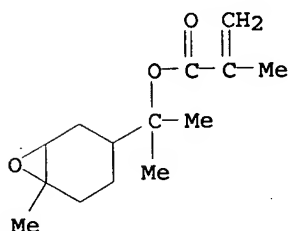
460085-61-4DP, photocrosslinked, thermal degraded
 460085-62-5DP, photocrosslinked, thermal degraded
 476445-52-0DP, photocrosslinked, thermal degraded
 622851-55-2DP, photocrosslinked, thermal degraded
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical
 process); PRP (Properties); SPN (Synthetic preparation); PREP
 (Preparation); PROC (Process)
 (photo-cross-linkable polymers having degradable properties on
 heating)

RN 460085-60-3 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-
 oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with cyclohexyl
 4-ethenylbenzenesulfonate (9CI) (CA INDEX NAME)

CM 1

CRN 354801-90-4

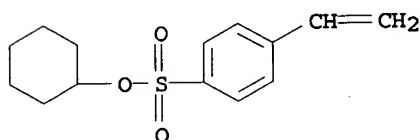
CMF C14 H22 O3



CM 2

CRN 211308-93-9

CMF C14 H18 O3 S

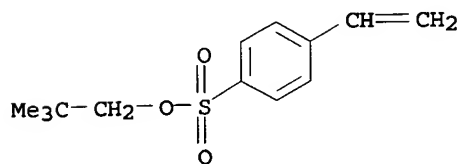


RN 460085-61-4 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-
 oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with
 2,2-dimethylpropyl 4-ethenylbenzenesulfonate (9CI) (CA INDEX
 NAME)

CM 1

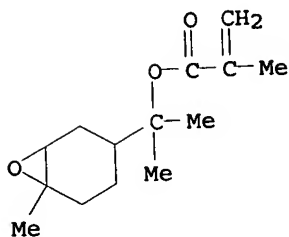
CRN 443899-80-7

CMF C13 H18 O3 S



CM 2

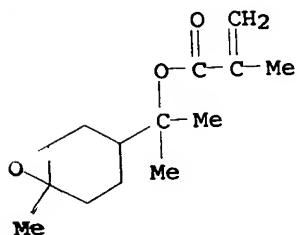
CRN 354801-90-4
CMF C14 H22 O3



RN 460085-62-5 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with phenyl 4-ethenylbenzenesulfonate (9CI) (CA INDEX NAME)

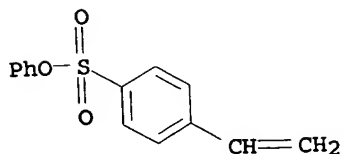
CM 1

CRN 354801-90-4
CMF C14 H22 O3



CM 2

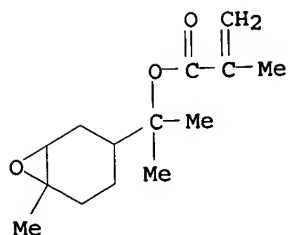
CRN 20996-57-0
CMF C14 H12 O3 S



RN 476445-52-0 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with methyl 4-ethenylbenzenesulfonate (9CI) (CA INDEX NAME)

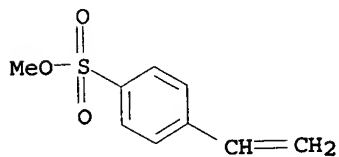
CM 1

CRN 354801-90-4
CMF C14 H22 O3



CM 2

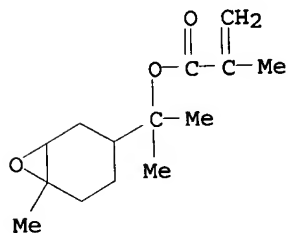
CRN 16736-97-3
CMF C9 H10 O3 S



RN 622851-55-2 HCAPLUS
CN 1-Butanaminium, N,N,N-tributyl-, salt with 4-ethenylbenzenesulfonic acid (1:1), polymer with 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 354801-90-4
CMF C14 H22 O3

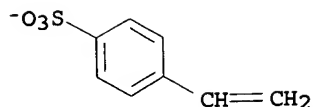


CM 2

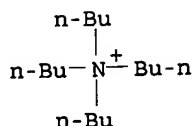
CRN 151164-21-5
CMF C16 H36 N . C8 H7 O3 S

CM 3

CRN 46061-72-7
CMF C8 H7 O3 S



CM 4

CRN 10549-76-5
CMF C16 H36 N

CC 35-8 (Chemistry of Synthetic High Polymers)

IT 460085-60-3P 460085-61-4P 460085-62-5P

476445-52-0P 622851-55-2P

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)

(photo-cross-linkable polymers having degradable properties on heating)

IT 460085-60-3DP, photocrosslinked, thermal degraded

460085-61-4DP, photocrosslinked, thermal degraded

460085-62-5DP, photocrosslinked, thermal degraded

476445-52-0DP, photocrosslinked, thermal degraded

622851-55-2DP, photocrosslinked, thermal degraded

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)

(photo-cross-linkable polymers having degradable properties on heating)

REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 9 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2002:695061 HCAPLUS

DOCUMENT NUMBER: 138:4834

TITLE: Photocrosslinkable polymers with redissolution property

AUTHOR(S): Shirai, Masamitsu; Kawaue, Akiya; Okamura, Haruyuki; Tsunooka, Masahiro

CORPORATE SOURCE: Department of Applied Chemistry, Graduate School of Engineering, Osaka Prefecture University, Osaka, 599-8531, Japan

SOURCE: Chemistry Letters (2002), (9), 940-941
CODEN: CMLTAG; ISSN: 0366-7022

PUBLISHER: Chemical Society of Japan

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Polymers having both thermally degradable epoxy-containing moieties and sulfonic acid ester moieties in the side chain were prepared and characterized. On UV irradiation the polymer films containing photoacid generators became insol. The crosslinked polymer films became soluble in water after bake treatment at 120-200°C.

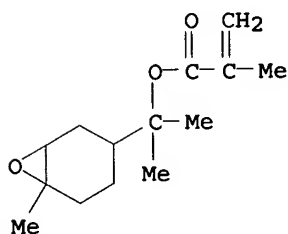
IT 460085-60-3DP, photocrosslinking, then thermal degradation

460085-61-4DP, photocrosslinking, then thermal degradation
 460085-62-5DP, photocrosslinking, then thermal degradation
 476445-52-ODP, photocrosslinking, then thermal degradation
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation);
 PREP (Preparation); RACT (Reactant or reagent)
 (photocrosslinkable polymers with redissoln. property)

RN 460085-60-3 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with cyclohexyl 4-ethenylbenzenesulfonate (9CI) (CA INDEX NAME)

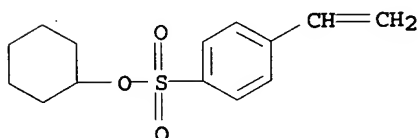
CM 1

CRN 354801-90-4
 CMF C14 H22 O3



CM 2

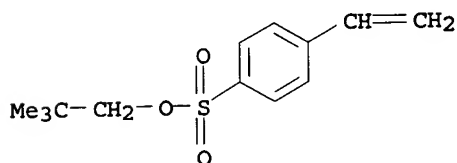
CRN 211308-93-9
 CMF C14 H18 O3 S



RN 460085-61-4 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with 2,2-dimethylpropyl 4-ethenylbenzenesulfonate (9CI) (CA INDEX NAME)

CM 1

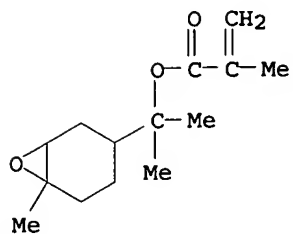
CRN 443899-80-7
 CMF C13 H18 O3 S



CM 2

CRN 354801-90-4

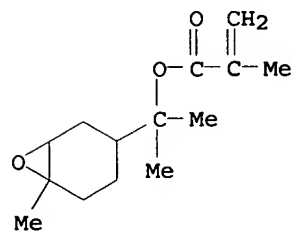
CMF C14 H22 O3



RN 460085-62-5 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with phenyl 4-ethenylbenzenesulfonate (9CI) (CA INDEX NAME)

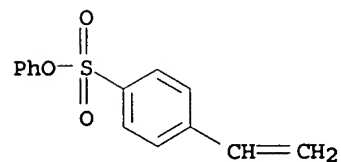
CM 1

CRN 354801-90-4
 CMF C14 H22 O3



CM 2

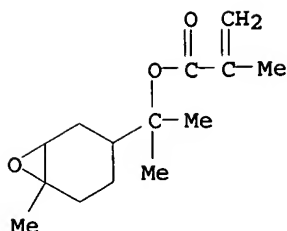
CRN 20996-57-0
 CMF C14 H12 O3 S



RN 476445-52-0 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with methyl 4-ethenylbenzenesulfonate (9CI) (CA INDEX NAME)

CM 1

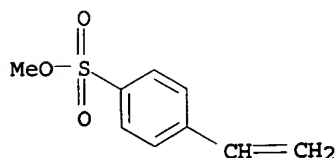
CRN 354801-90-4
 CMF C14 H22 O3



CM 2

CRN 16736-97-3

CMF C9 H10 O3 S



CC 35-4 (Chemistry of Synthetic High Polymers)
 IT 460085-60-3DP, photocrosslinking, then thermal degradation
 460085-61-4DP, photocrosslinking, then thermal degradation
 460085-62-5DP, photocrosslinking, then thermal degradation
 476445-52-0DP, photocrosslinking, then thermal degradation
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation);
 PREP (Preparation); RACT (Reactant or reagent)
 (photocrosslinkable polymers with redissoln. property)
 REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS AVAILABLE
 IN THE RE FORMAT

L24 ANSWER 10 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2002:559997 HCAPLUS

DOCUMENT NUMBER: 137:248280

TITLE: Thermally degradable photocrosslinking polymers

AUTHOR(S): Shirai, Masamitsu; Morishita, Satoshi; Kawaue, Akiya; Okamura, Haruyuki; Tsunooka, Masahiro

CORPORATE SOURCE: Department of Applied Chemistry, Graduate School of Engineering, Osaka Prefecture University, Osaka, 599-8531, Japan

SOURCE: PMSE Preprints (2002), 87, 384-386
CODEN: PPMRA9; ISSN: 1550-6703

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal; (computer optical disk)

LANGUAGE: English

AB Since photochem. crosslinked polymers are insol. and infusible networks, scratching or chemical treatments with strong acid or base must be applied to remove these networks from substrates. However, crosslinked polymers are difficult or impossible to thoroughly remove without damaging underlying materials. In this study we have synthesized polymers having both epoxy moieties and thermally cleavable tertiary ester moieties in the side chain. On UV irradiation, the polymer films containing photo-acid generators became insol. in organic solvents. When the crosslinked polymer films were baked at 100-180 °C, they became soluble in methanol. The effective baking temperature was strongly dependent on polymer structure. The crosslinked polymers having styrene-sulfonic acid

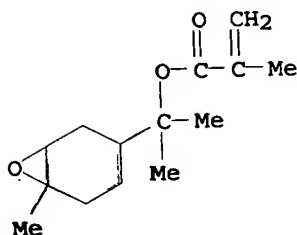
ester units became soluble in water after bake treatments. These polymers are important as a photocrosslinkable materials which can be removed by baking after use.

IT 354801-91-5P 401928-96-9P 401928-97-0P
 460085-60-3P 460085-61-4P 460085-62-5P
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
 (preparation of photo-crosslinkable polymers with thermally degradable property)

RN 354801-91-5 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

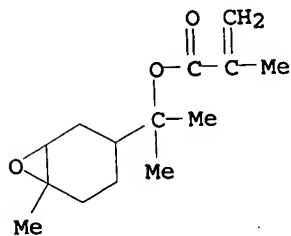
CRN 354801-90-4
 CMF C14 H22 O3



RN 401928-96-9 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, 1,1-dimethylethyl ester, polymer with 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

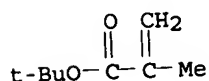
CM 1

CRN 354801-90-4
 CMF C14 H22 O3



CM 2

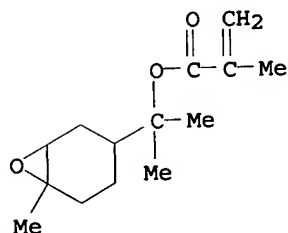
CRN 585-07-9
 CMF C8 H14 O2



RN 401928-97-0 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with 1-(1,1-dimethylethoxy)-4-ethenylbenzene (9CI) (CA INDEX NAME)

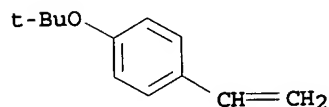
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CRN 354801-90-4
 CMF C14 H22 O3



CM 2

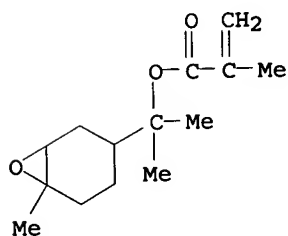
CRN 95418-58-9
 CMF C12 H16 O



RN 460085-60-3 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with cyclohexyl 4-ethenylbenzenesulfonate (9CI) (CA INDEX NAME)

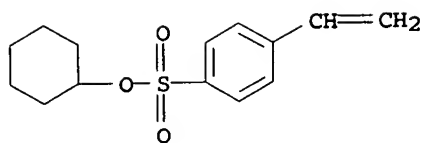
CM 1

CRN 354801-90-4
 CMF C14 H22 O3



CM 2

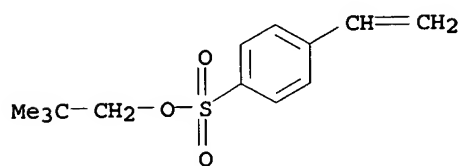
CRN 211308-93-9
 CMF C14 H18 O3 S



RN 460085-61-4 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with 2,2-dimethylpropyl 4-ethenylbenzenesulfonate (9CI) (CA INDEX NAME)

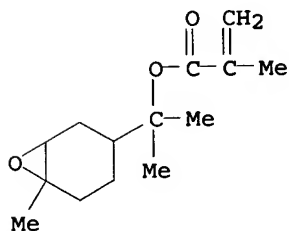
CM 1

CRN 443899-80-7
 CMF C13 H18 O3 S



CM 2

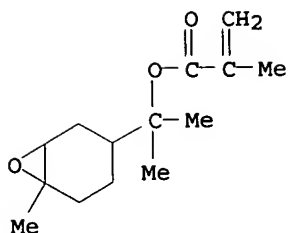
CRN 354801-90-4
 CMF C14 H22 O3



RN 460085-62-5 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with phenyl 4-ethenylbenzenesulfonate (9CI) (CA INDEX NAME)

CM 1

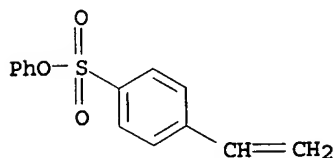
CRN 354801-90-4
 CMF C14 H22 O3



CM 2

CRN 20996-57-0

CMF C14 H12 O3 S



CC 37-3 (Plastics Manufacture and Processing)

IT 354801-91-5P 401928-96-9P 401928-97-0P

460085-60-3P 460085-61-4P 460085-62-5P

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)

(preparation of photo-crosslinkable polymers with thermally degradable property)

REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 11 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2002:11232 HCAPLUS

DOCUMENT NUMBER: 136:217428

TITLE: Photo-Cross-Linkable Polymers with Thermally Degradable Property

AUTHOR(S): Shirai, Masamitsu; Morishita, Satoshi;

Okamura, Haruyuki; Tsunooka, Masahiro

CORPORATE SOURCE: Department of Applied Chemistry Graduate

School of Engineering, Osaka Prefecture

University, Sakai, Osaka, 599-8531, Japan

SOURCE: Chemistry of Materials (2002), 14(1), 334-340

CODEN: CMATEX; ISSN: 0897-4756

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Polymers having both epoxy moieties and thermally cleavable tertiary ester moieties in the side chain were synthesized and characterized. On UV irradiation, polymer films containing photoacid generators (PAG) such as 9-fluorenylideneimino p-toluenesulfonate (FITS) and triphenylsulfonium triflate (TPST) became insol. in THF. The insol. fraction of the irradiated films was increased by postexposure-baking at 90 °C if FITS was used as a PAG. When the crosslinked polymer films were baked at 160-180 °C, they became soluble in methanol. The effective baking temperature was dependent on the type of PAG used and on the polymer structure. Thermal degradation of the photochem. induced network polymers was studied by FT-IR spectroscopy, TGA anal., and film

thickness changes.

IT 354801-91-5P 401928-96-9P 401928-97-0P
401928-98-1P

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(preparation of photo-crosslinkable polymers with thermally degradable property)

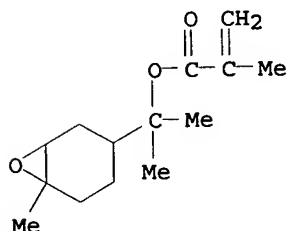
RN 354801-91-5 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 354801-90-4

CMF C14 H22 O3



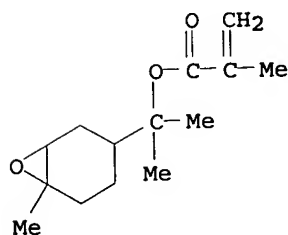
RN 401928-96-9 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1,1-dimethylethyl ester, polymer with 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 354801-90-4

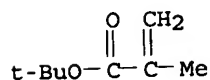
CMF C14 H22 O3



CM 2

CRN 585-07-9

CMF C8 H14 O2



RN 401928-97-0 HCAPLUS

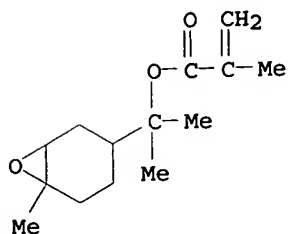
CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-

oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with
1-(1,1-dimethylethoxy)-4-ethenylbenzene (9CI) (CA INDEX NAME)

CM 1

CRN 354801-90-4

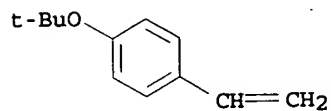
CMF C14 H22 O3



CM 2

CRN 95418-58-9

CMF C12 H16 O



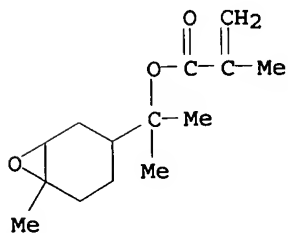
RN 401928-98-1 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with
9H-fluoren-9-one O-[(4-ethenylphenyl)sulfonyl]oxime (9CI) (CA
INDEX NAME)

CM 1

CRN 354801-90-4

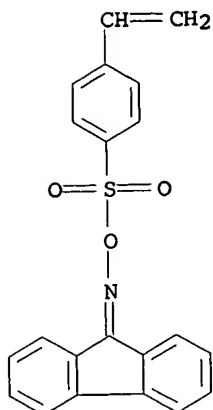
CMF C14 H22 O3



CM 2

CRN 120283-85-4

CMF C21 H15 N O3 S



CC 37-3 (Plastics Manufacture and Processing)
 IT 354801-91-5P 401928-96-9P 401928-97-0P
 401928-98-1P
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
 (preparation of photo-crosslinkable polymers with thermally degradable property)
 REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 12 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2001:602558 HCAPLUS
 DOCUMENT NUMBER: 135:187711
 TITLE: Acid-crosslinkable polymer with resolubility after heating and photosensitive resin composition using it in combination with photoacid generator
 INVENTOR(S): Shirai, Masamitsu; Kakuoka, Masahiro
 PATENT ASSIGNEE(S): Foundation for Scientific Technology Promotion, Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001226430	A2	20010821	JP 2000-34613	2000 0214
PRIORITY APPLN. INFO.:			JP 2000-34613	2000 0214

AB The polymer has chemical groups having acid-crosslinkable terminals, tertiary C or O of ester or aryl ether linkage directly linked to the chemical groups as its side chain. The composition showing photocrosslinkable and thermally decomposable properties is composed of the above polymer and a photoacid generator. Cured products of the composition can be modified to easily decomposable structures by heating under milder condition.

IT 354801-91-5P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(acid-crosslinkable polymer with resoly. after heating for photoresist using in combination with photoacid generator)

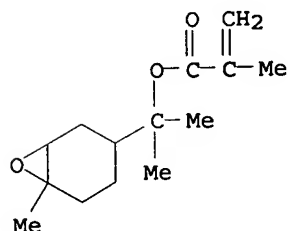
RN 354801-91-5 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 354801-90-4

CMF C14 H22 O3



IC ICM C08F020-28

ICS C08F002-48; C08F020-38; C08F030-08; C08J003-24; G03F007-038

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 38

IT 354801-91-5P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(acid-crosslinkable polymer with resoly. after heating for photoresist using in combination with photoacid generator)

L24 ANSWER 13 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2000:686614 HCAPLUS

DOCUMENT NUMBER: 133:274251

TITLE: Positively-working photoresist composition for far-ultraviolet ray photolithography

INVENTOR(S): Kodama, Kunihiro; Sato, Kenichiro; Aogo, Toshiaki

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 62 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

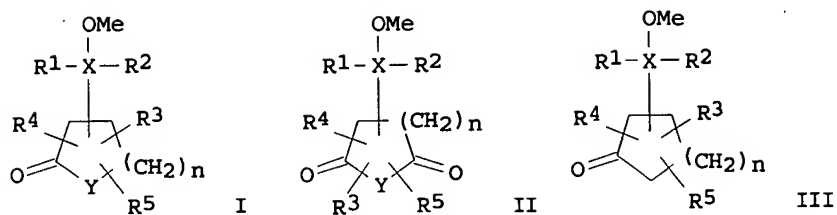
FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000267287	A2	20000929	JP 1999-186809	1999 0630
KR 2000011988	A	20000225	KR 1999-30510	1999 0727
US 6291130	B1	20010918	US 1999-361568	1999 0727
US 6517991	B1	20030211	US 2000-606681	2000

US 2003044718	A1	20030306	US 2002-176067	0630
				2002
				0621
US 2004161697	A2	20040819		
US 6818377	B2	20041116		
PRIORITY APPLN. INFO.:			JP 1998-263392	A
				1998
				0917
			JP 1999-6662	A
				1999
				0113
			JP 1998-211137	A
				1998
				0727
			JP 1999-186809	A
				1999
				0630
			US 1999-361568	A3
				1999
				0727
			US 2000-606681	A3
				2000
				0630

GI



AB The composition contains a compound discharging acids under active ray or radiation irradiation and a polymer whose solubility in alkaline developer is enhanced because of decomposition of the polymer by the resulting acids. The polymer involves carboxyl-protecting alc. units I, II, and/or III [R1, R2 = H, (substituted) linear, branched, or cyclic alkyl; R1 and R2 may form single or polycyclic group which may contain O, S, N, ketone, ester, imide, or amide group; R3-R5 = H, (substituted) linear, branched, cyclic alkyl, alkoxy; 2 of R3-R5 may form single or polycyclic group as above; X = single bond, divalent group; Y = O, S, NH, N(OH), NR; R = alkyl; n = 1-3]. The far-UV-sensitive photoresist composition is suitable for semiconductor device fabrication, etc.

IT 297156-37-7P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(far UV-sensitive photoresist composition containing protected carboxy-substituted polymer)

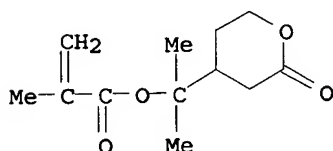
RN 297156-37-7 HCAPLUS

CN 2-Butenedioic acid, mono[[1,2,3,4,4a,4b,5,6,10,10a-decahydro-1,4a-

dimethyl-7-(1-methylethyl)-1-phenanthrenyl[methyl] ester, polymer
with 1-methyl-1-(tetrahydro-2-oxo-2H-pyran-4-yl)ethyl
2-methyl-2-propenoate (9CI) (CA INDEX NAME)

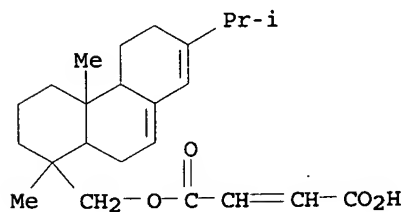
CM 1

CRN 297156-36-6
CMF C12 H18 O4



CM 2

CRN 213470-10-1
CMF C24 H34 O4



IC ICM G03F007-039

ICS H01L021-027; C08F020-26

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and
Other Reprographic Processes)

Section cross-reference(s): 76

IT	280566-60-1P	288303-55-9P	297156-25-3P	297156-27-5P
	297156-28-6P	297156-30-0P	297156-33-3P	297156-35-5P
	297156-37-7P	297156-39-9P	297156-40-2P	297156-42-4P
	297156-44-6P	297156-46-8P	297156-48-0P	297156-51-5P
	297156-52-6P	297156-53-7P	297156-55-9P	297156-57-1P
	297156-58-2P	297156-59-3P		

RL: IMF (Industrial manufacture); TEM (Technical or engineered
material use); PREP (Preparation); USES (Uses)

(far UV-sensitive photoresist composition containing protected
carboxy-substituted polymer)

L24 ANSWER 14 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2000:182104 HCAPLUS

DOCUMENT NUMBER: 132:294388

TITLE: Altering network architecture in cured
thermosets: the decomposition mechanism and
network breakdown of reworkable epoxies with
tertiary ester links

AUTHOR(S): Chen, J. S.; Ober, C. K.; Poliks, M. D.

CORPORATE SOURCE: Department of Materials Science and
Engineering, Cornell University, Ithaca, NY,
14853, USA

SOURCE: Polymeric Materials Science and Engineering
(2000), 82, 357-358

CODEN: PMSEDG; ISSN: 0743-0515

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal
LANGUAGE: English

AB The breakdown mechanism of the cycloaliph. epoxy monomer and polymer network derived by the esterification of cyclohexenoic acid with α -terpineol with subsequent epoxidn. was studied. The resin cleaves in a manner that enabled reworkability in fully cured thermoset networks that contain it. The monomer breaks at its tertiary ester bond. Network decomposition due to disconnection of the monomer segments rendered the system soluble in common solvents.

IT 207505-78-0

RL: RCT (Reactant); RACT (Reactant or reagent)
(decomposition mechanism and network breakdown of reworkable epoxies with tertiary ester links)

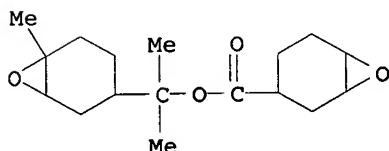
RN 207505-78-0 HCAPLUS

CN 7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 195065-80-6

CMF C17 H26 O4



CC 37-4 (Plastics Manufacture and Processing)

IT 195065-80-6 207505-78-0

RL: RCT (Reactant); RACT (Reactant or reagent)
(decomposition mechanism and network breakdown of reworkable epoxies with tertiary ester links)

REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L24 ANSWER 15 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1999:519010 HCAPLUS

DOCUMENT NUMBER: 131:191866

TITLE: Radiation-sensitive resin composition for chemically amplified photoresist

INVENTOR(S): Suwa, Mitsufumi; Iwasawa, Haruo; Yamamoto, Masafumi; Kajita, Toru

PATENT ASSIGNEE(S): JSR Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 23 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

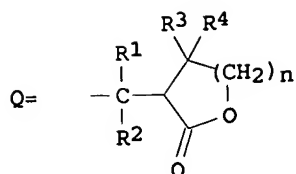
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11223950	A2	19990817	JP 1998-37944	1998 0205

PRIORITY APPLN. INFO.:

JP 1998-37944

1998
0205

GI



AB The composition comprises (A) an alkali insol. or slightly alkali soluble resin having a lactone ring-containing group Q (R1-4 = H, C1-6 linear or branched alkyl, 5- to 8-membered cyclic alkyl; R1 and R2 or R3 and R4 may form 5- to 8-membered cyclic alkyl; n = 1-4) which releases by acids, and when the group itself and/or the lactone ring releases, the resin becomes alkali soluble and (B) a radiation-sensitive acid generator. The composition has high transparency and resolution to radiation, and is especially useful for manufacturing semiconductor devices.

IT **239784-49-7P 239784-82-8P**
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (radiation-sensitive composition containing resin having acid-releasable group with lactone ring for chemical amplified photoresist)

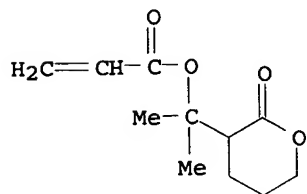
RN 239784-49-7 HCAPLUS

CN 2-Propenoic acid, 1-methyl-1-(tetrahydro-2-oxo-2H-pyran-3-yl)ethyl ester, polymer with tricyclo[3.3.1.1^{3,7}]dec-1-yl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 239784-45-3

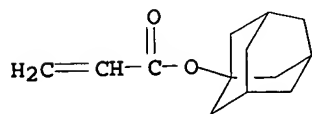
CMF C11 H16 O4



CM 2

CRN 121601-93-2

CMF C13 H18 O2



RN 239784-82-8 HCAPLUS

CN 1,4:5,8-Dimethanonaphthalene-2-carboxylic acid, decahydro-6(or 7)-[(1-oxo-2-propenyl)oxy]-, 1-methyl-1-(tetrahydro-2-oxo-2H-pyran-3-yl)ethyl ester, polymer with tricyclo[3.3.1.1^{3,7}]dec-1-yl

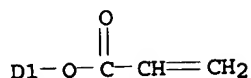
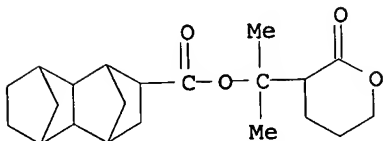
2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 239784-80-6

CMF C24 H32 O6

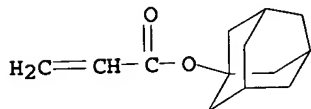
CCI IDS



CM 2

CRN 121601-93-2

CMF C13 H18 O2



IC ICM G03F007-039

ICS H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 38

IT 239784-46-4P 239784-47-5P 239784-48-6P 239784-49-7P

239784-81-7P 239784-82-8P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(radiation-sensitive composition containing resin having acid-releasable group with lactone ring for chemical amplified photoresist)

L24 ANSWER 16 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1998:398800 HCAPLUS

DOCUMENT NUMBER: 129:5113

TITLE: Reworkable Epoxies: Thermosets with Thermally Cleavable Groups for Controlled Network Breakdown

AUTHOR(S): Yang, Shu; Chen, Jir-Shyr; Koerner, Hilmar; Breiner, Thomas; Ober, Christopher K.; Poliks, Mark D.

CORPORATE SOURCE: Department of Materials Science and Engineering Bard Hall, Cornell University, Ithaca, NY, 14853-1501, USA

SOURCE: Chemistry of Materials (1998), 10(6), 1475-1482

CODEN: CMATEX; ISSN: 0897-4756

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A series of epoxies with primary, secondary, and tertiary ester linkages were synthesized. Those networks which have tertiary esters break down at much lower temps. (~220 °C) than those with primary or secondary esters. The thermosets cured from these epoxides have the advantage of being thermally decomposable at relatively modest temps. without introduction of solvent or catalyst into the system. The concentration of weak linkages in the network greatly affects their decomposition behavior. The cured thermosets with tertiary esters retain the advantage of the mech. behavior of conventional primary ester thermosets at room temperature while having reduced mech. properties at elevated temps., thereby offering the possibility of easier thermoset removal.

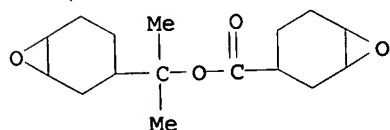
IT 207505-77-9P 207505-78-0P 207505-79-1P
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation);
 PREP (Preparation); RACT (Reactant or reagent)
 (preparation of reworkable epoxy thermosets with thermally cleavable ester groups for controlled network breakdown)

RN 207505-77-9 HCAPLUS
 CN 7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 1-methyl-1-(7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 195065-78-2

CMF C16 H24 O4

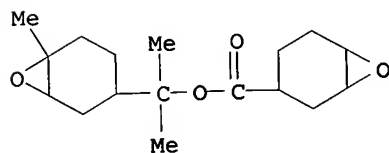


RN 207505-78-0 HCAPLUS
 CN 7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 195065-80-6

CMF C17 H26 O4

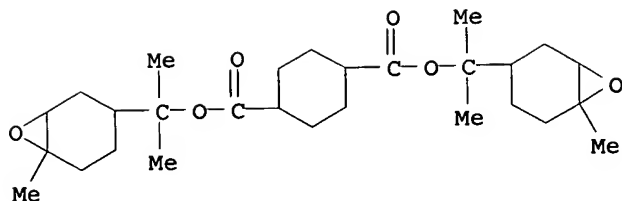


RN 207505-79-1 HCAPLUS
 CN 1,4-Cyclohexanedicarboxylic acid, bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 207505-75-7

CMF C28 H44 O6



CC 37-3 (Plastics Manufacture and Processing)
 IT 195065-76-0P 195065-78-2P 195065-80-6P 207505-75-7P
 207505-76-8P 207505-77-9P 207505-78-0P
 207505-79-1P
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation);
 PREP (Preparation); RACT (Reactant or reagent)
 (preparation of reworkable epoxy thermosets with thermally cleavable
 ester groups for controlled network breakdown)
 REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS AVAILABLE
 IN THE RE FORMAT

L24 ANSWER 17 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1997:106010 HCAPLUS

DOCUMENT NUMBER: 126:171982

TITLE: Synthesis and characterization of new
 silicon-containing fluoroacrylate monomers and
 polymers

AUTHOR(S): Reddy, V. Sreenivasulu; Lunceford, B. D.;
 Cassidy, P. E.; Fitch, J. W.

CORPORATE SOURCE: Dep. Chemistry, Southwest Texas State Univ.,
 San Marcos, TX, 78666, USA

SOURCE: Polymer (1997), 38(3), 703-706
 CODEN: POLMAG; ISSN: 0032-3861

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Silicon-containing fluoroacrylate polymers and copolymers (with Me
 acrylate) were prepared, starting from 1,3-bis(hexafluoro-2-hydroxy-
 2-propyl)benzene. The polymers were obtained by bulk free radical
 polymerization using AIBN as initiator. The polymers have inherent
 viscosity 0.20-0.33 dL/g and form brittle hydrophobic films by
 solution casting. The polyacrylates are stable to .apprx.375°
 (10% weight loss) in N and have Tg 67-110°.

IT 187093-30-7P 187093-31-8P 187093-32-9P

RL: PRP (Properties); SPN (Synthetic preparation); PREP
 (Preparation)

(preparation and properties of)

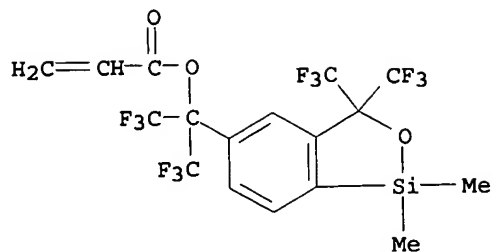
RN 187093-30-7 HCAPLUS

CN 2-Propenoic acid, 1-[1,3-dihydro-1,1-dimethyl-3,3-
 bis(trifluoromethyl)-2,1-benzoxasilol-5-yl]-2,2,2-trifluoro-1-
 (trifluoromethyl)ethyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 169229-01-0

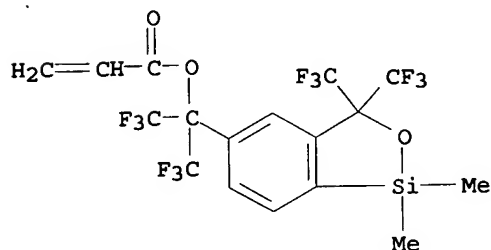
CMF C17 H12 F12 O3 Si



RN 187093-31-8 HCAPLUS
 CN 2-Propenoic acid, 1-[1,3-dihydro-1,1-dimethyl-3,3-bis(trifluoromethyl)-2,1-benzoxasilol-5-yl]-2,2,2-trifluoro-1-(trifluoromethyl)ethyl ester, polymer with methyl 2-propenoate (9CI) (CA INDEX NAME)

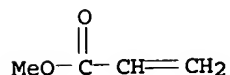
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CRN 169229-01-0
 CMF C17 H12 F12 O3 Si



CM 2

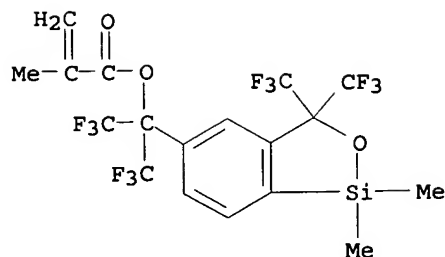
CRN 96-33-3
 CMF C4 H6 O2



RN 187093-32-9 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, 1-[1,3-dihydro-1,1-dimethyl-3,3-bis(trifluoromethyl)-2,1-benzoxasilol-5-yl]-2,2,2-trifluoro-1-(trifluoromethyl)ethyl ester, polymer with methyl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

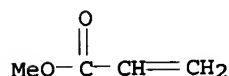
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CM 2

CRN 96-33-3

CMF C4 H6 O2



CC 35-4 (Chemistry of Synthetic High Polymers)
 IT 187093-30-7P 187093-31-8P 187093-32-9P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP
 (Preparation)
 (preparation and properties of)

L24 ANSWER 18 OF 18 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1995:7684 HCAPLUS

DOCUMENT NUMBER: 122:107207

TITLE: Polymerization of functional monomers
 containing amino group. XVI. Thermo-sensitive
 characteristics of polyacrylates having
 morpholino-moiety and their hydrogels

AUTHOR(S): Zhang, Zhenyu; Chen, Tianming; Il, Fumian

CORPORATE SOURCE: Dep. Chem., Heilongjiang Univ., Harbin,
150080, Peop. Rep. ChinaSOURCE: Gaofenzi Xuebao (1993), (2), 237-41
CODEN: GAXUE9; ISSN: 1000-3304

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB Acrylates having morpholino-moiety were synthesized and polymerized
 either in bulk or aqueous solution by the initiation of AIBN or K2S2O8.
 Studies on the temperature-dependence of transparency revealed that both
 poly(morpholinoethyl methacrylate) and its slightly crosslinked
 hydrogel were remarkably thermo-sensitive, and the
 thermo-sensitivity much depended on temperature, pH of medium, and the
 degree of crosslinking, due to microphase separation induced by these
 factors.

IT 160676-62-0P 160676-65-3P

RL: PRP (Properties); SPN (Synthetic preparation); PREP
 (Preparation)

(thermo-sensitivity and transparency of polyacrylates having
 morpholino-moiety and their hydrogels)

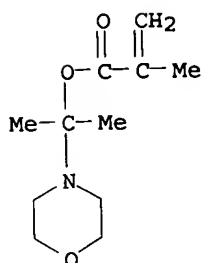
RN 160676-62-0 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(4-morpholinyl)ethyl
 ester, polymer with N,N'-methylenebis[2-propenamide] (9CI) (CA
 INDEX NAME)

CM 1

CRN 160676-61-9

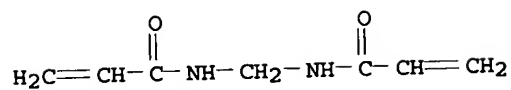
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CM 2

CRN 110-26-9

CMF C7 H10 N2 O2

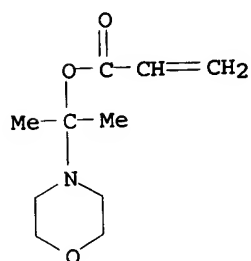


RN 160676-65-3 HCAPLUS
 CN 2-Propenoic acid, 1-methyl-1-(4-morpholinyl)ethyl ester, polymer
 with N,N'-methylenebis[2-propenamide] (9CI) (CA INDEX NAME)

CM 1

CRN 160676-64-2

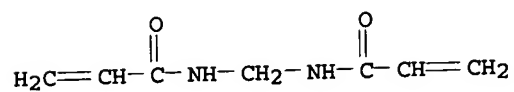
CMF C10 H17 N O3



CM 2

CRN 110-26-9

CMF C7 H10 N2 O2



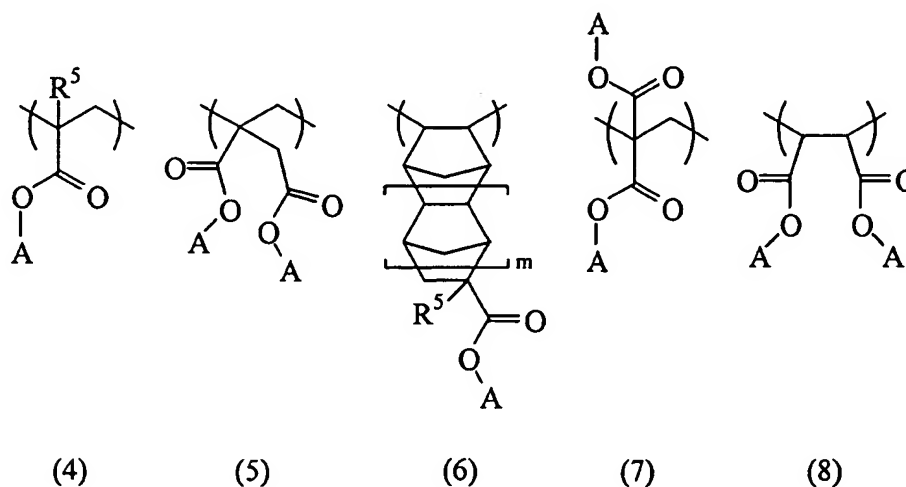
CC 37-3 (Plastics Manufacture and Processing)
 Section cross-reference(s): 35
 IT 142249-39-6P 160676-62-0P 160676-63-1P
 160676-65-3P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP

(Preparation)
(thermo-sensitivity and transparency of polyacrylates having
morpholino-moiety and their hydrogels)

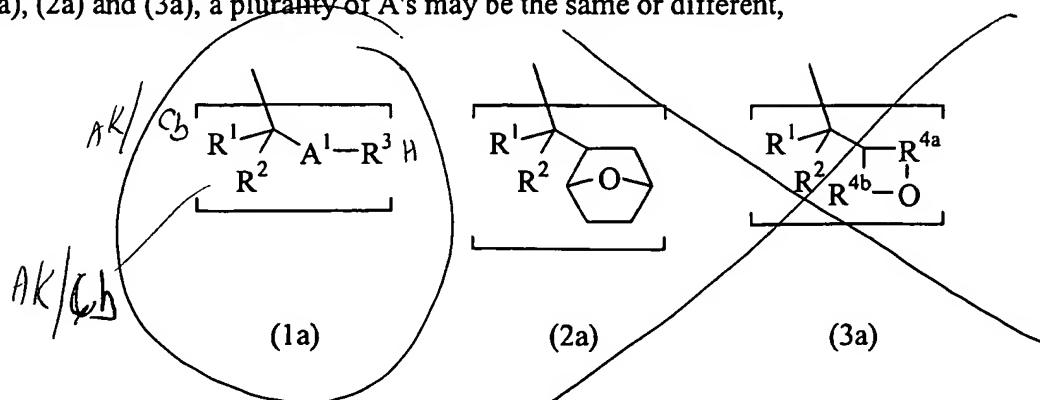
=>

13. (Original) The pattern forming process of claim 11 wherein the substrate bears thereon an underlay on which the coating of the resist composition is formed, said process further comprising the step of treating the underlay by etching with a halogen gas containing chlorine or bromine, after the resist pattern formation.

14. (New) A polymer comprising recurring units containing silicon and recurring units of at least one type selected from the general formulae (4) to (8):



wherein R^5 is hydrogen or methyl, m is 0 or 1, A is a group selected from the following formulae (1a), (2a) and (3a), a plurality of A 's may be the same or different,



wherein A^1 is a divalent group selected from furandiyl, tetrahydrofurandiyl and oxanorbornanediyl, R^1 and R^2 are independently selected from straight, branched or cyclic monovalent hydrocarbon groups of 1 to 10 carbon atoms, or R^1 and R^2 taken together may form an aliphatic hydrocarbon ring with the carbon atom to which they are attached, provided that in formula (2a), R^1 and R^2 taken together form an aliphatic hydrocarbon ring with the carbon atom to which they are attached, and R^3 is hydrogen or a straight, branched or cyclic monovalent hydrocarbon group of 1 to 10 carbon atoms which may contain a hetero atom, and R^{4a} and R^{4b} each are a single bond or an alkylene or alkenylene group of 1 to 4 carbon atoms, the total number of carbon atoms in R^{4a} and R^{4b} being from 3 to 6.



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Bib Data Sheet

CONFIRMATION NO. 4118

SERIAL NUMBER 10765,919	FILING DATE 01/29/2004 RULE	CLASS 430	GROUP ART UNIT 1752	ATTORNEY DOCKET NO. 0171-1058P
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APPLICANTS

Jun Hatakeyama, Niigata-ken, JAPAN;
 Takanobu Takeda, Niigata-ken, JAPAN;
 Osamu Watanabe, Niigata-ken, JAPAN;

** CONTINUING DATA *****
 None SJL

** FOREIGN APPLICATIONS *****
 JAPAN 2003-021416 01/30/2003) SJL
 JAPAN 2003-194033 07/09/2003)

IF REQUIRED, FOREIGN FILING LICENSE GRANTED
 ** 08/18/2005

Foreign Priority claimed 35 USC 119 (a-d) conditions met	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no <input checked="" type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> Met after Allowance Verified and Acknowledged	STATE OR COUNTRY JAPAN	SHEETS DRAWING 2	TOTAL CLAIMS 13	INDEPENDENT CLAIMS 4
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EXAMINER'S SIGNATURE: *[Signature]* INITIALS: SJL

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 02292
 BIRCH STEWART KOLASCH & BIRCH
 PO BOX 747
 FALLS CHURCH, VA
 22040-0747

TITLE
 Polymer, resist composition and patterning process

FILING FEE RECEIVED	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:	<input type="checkbox"/> All Fees <input type="checkbox"/> 1.16 Fees (Filing) <input type="checkbox"/> 1.17 Fees (Processing Ext. of time)
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L1 1 S US20050260521/PN
SEL RN

FILE 'REGISTRY' ENTERED AT 14:13:30 ON 06 JUN 2006

L2 12 S E1-E12

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L3 STR
L4 STR L3

FILE 'REGISTRY' ENTERED AT 14:34:42 ON 06 JUN 2006

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L5 STR L4

FILE 'REGISTRY' ENTERED AT 14:39:21 ON 06 JUN 2006

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E OXANORBORANE/CN
E OXONORBORANE/CN
E 676456-74-9/RN
L6 6 S 676456-74-9/CRN
L7 50 S L4
L8 SCR 2043
L9 50 S L4 AND L8
L10 50 S L5 AND L8

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L11 STR L5

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L12 16 S L11 AND L8

FILE 'LREGISTRY' ENTERED AT 14:59:22 ON 06 JUN 2006

L13 STR L11
L14 STR L13

FILE 'REGISTRY' ENTERED AT 15:11:03 ON 06 JUN 2006

L15 2 S L14 AND L8
L16 113 S L14 AND L8 FUL
SAV L16 LEE919/A
L17 7 S L2 AND L16

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L18 STR

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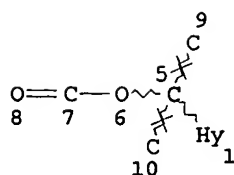
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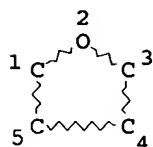
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 ECOUNT IS M4-X7 C E1 O AT 1

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 NUMBER OF NODES IS 7

STEREO ATTRIBUTES: NONE

L16 113 SEA FILE=REGISTRY SSS FUL L14 AND L8
 L18 STR



NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED
 NUMBER OF NODES IS 5

STEREO ATTRIBUTES: NONE

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L22 ANSWER 1 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:445341 HCAPLUS

DOCUMENT NUMBER: 142:490394

TITLE: Acrylic polymers for chemically amplified
 positive photoresists, and method for pattern
 formation using them

INVENTOR(S): Hatakeyama, Jun; Harada, Yuji; Kawai, Yoshio

PATENT ASSIGNEE(S): Shin-Etsu Chemical Industry Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 56 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2005133066

A2

20050526

JP 2004-215907

2004
0723

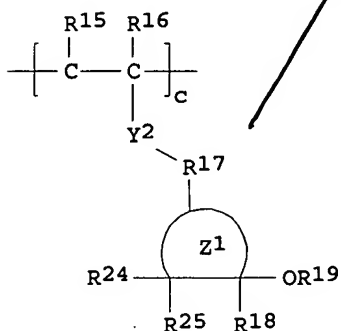
PRIORITY APPLN. INFO.:

JP 2003-350143

A

2003
1008

GI



I

AB The polymers have repeating units of (A) [CHR2CR1[CO2CR3R4(R5R6)]]a and (B) [CHR8CR9[Y1R10R23R11CR12R13(OR14)]]b and/or I [R1 = H, Me, CH2CO2R7; R2 = H, Me, CO2R7; R3, R4 = C1-10 hydrocarbyl, R3 and R4 may link together to form an aliphatic hydrocarbon ring with connecting C; R5 = furandiyl, tetrahydrofurandiyl, and oxanorbornanediyl; R6 = H, C1-10 hydrocarbyl; R7 = H, C1-15 alkyl; R9, R16 = H, Me, CH2CO2R7; R8, R15 = H, Me, CO2R7; R10, R11, R17 = single bond, C1-4 alkylene; R12, R13 = trifluoromethyl, Me, R12 = R13 ≠ Me; R18 = F, trifluoromethyl; R14, R19 = H, acid-labile group; R23 = (O-, S-containing bridged) C4-20 cyclic alkylene; R24, R25 = H, F; Z1 = (O-, S-containing) C4-12 bridged cyclic hydrocarbon group; Y1, Y2 = O, CO2; a = 0.1-0.8; b, c = 0-0.8; (b + c) = 0.05-0.8]. The photoresists show high sensitivity and resolution, and low line edge roughness.

IT 851866-57-4P 851866-58-5P 851866-59-6P
851866-60-9P 851866-61-0P 851866-62-1P
851866-63-2P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(acrylic polymers having specific acid-labile groups for chemical amplified pos. photoresists)

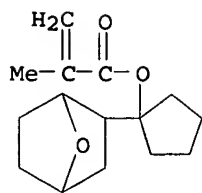
RN 851866-57-4 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-6-yl ester, polymer with 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate and 5-[3,3,3-trifluoro-2-hydroxy-2-(trifluoromethyl)propyl]bicyclo[2.2.1]hept-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

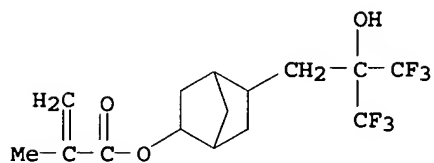
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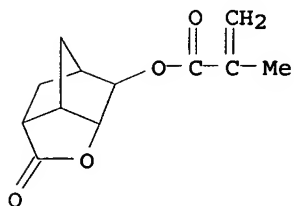
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CM 2

CRN 617711-94-1
CMF C15 H18 F6 O3

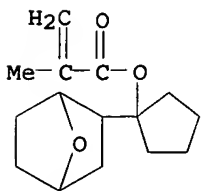
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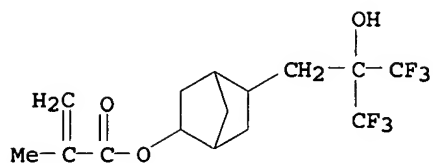
RN 851866-58-5 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-hydroxytricyclo[3.3.1.1.3,7]dec-1-yl ester, polymer with 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate and 5-[3,3,3-trifluoro-2-hydroxy-2-(trifluoromethyl)propyl]bicyclo[2.2.1]hept-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

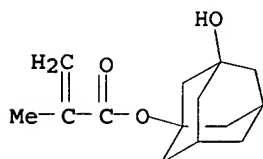
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CM 2

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CMF C15 H18 F6 O3

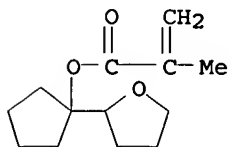
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CRN 115372-36-6
CMF C14 H20 O3

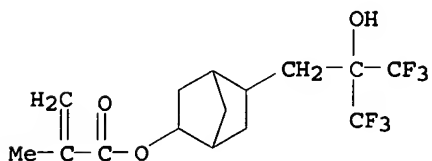
RN 851866-59-6 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl
ester, polymer with 1-(tetrahydro-2-furanyl)cyclopentyl
2-methyl-2-propenoate and 5-[3,3,3-trifluoro-2-hydroxy-2-
(trifluoromethyl)propyl]bicyclo[2.2.1]hept-2-yl
2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 819837-30-4
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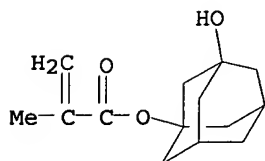
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CRN 617711-94-1
CMF C15 H18 F6 O3

CM 3

CRN 115372-36-6

CMF C14 H20 O3



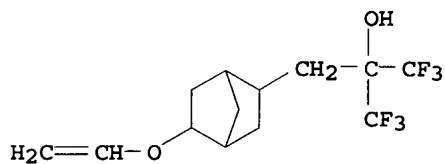
RN 851866-60-9 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-hydroxytricyclo[3.3.1.1.3,7]dec-1-yl ester, polymer with 5-(ethenyloxy)- α,α -bis(trifluoromethyl)bicyclo[2.2.1]heptane-2-ethanol and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 849811-87-6

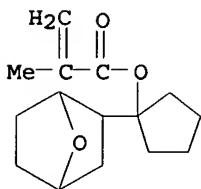
CMF C13 H16 F6 O2



CM 2

CRN 676456-72-7

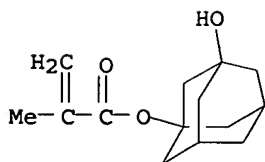
CMF C15 H22 O3



CM 3

CRN 115372-36-6

CMF C14 H20 O3



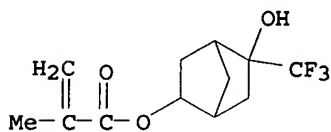
RN 851866-61-0 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-hydroxytricyclo[3.3.1.1.3,7]dec-1-yl ester, polymer with 5-hydroxy-5-(trifluoromethyl)bicyclo[2.2.1]hept-2-yl 2-methyl-2-propenoate and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 849803-66-3

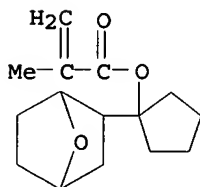
CMF C12 H15 F3 O3



CM 2

CRN 676456-72-7

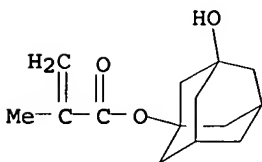
CMF C15 H22 O3



CM 3

CRN 115372-36-6

CMF C14 H20 O3



RN 851866-62-1 HCAPLUS

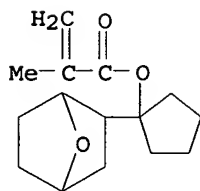
CN 2-Propenoic acid, 2-methyl-, 2-ethyldecahydro-1,4:5,8-dimethanonaphthalen-2-yl ester, polymer with 3-hydroxytricyclo[3.3.1.1.3,7]dec-1-yl 2-methyl-2-propenoate, 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate and 5-[3,3,3-trifluoro-2-hydroxy-2-(trifluoromethyl)propyl]bicyclo

[2.2.1]hept-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

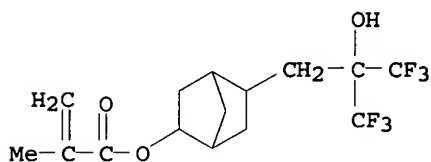
CMF C15 H22 O3



CM 2

CRN 617711-94-1

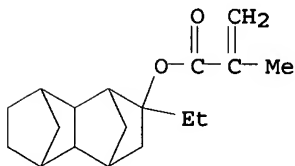
CMF C15 H18 F6 O3



CM 3

CRN 485819-03-2

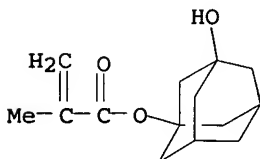
CMF C18 H26 O2



CM 4

CRN 115372-36-6

CMF C14 H20 O3



RN 851866-63-2 HCAPLUS

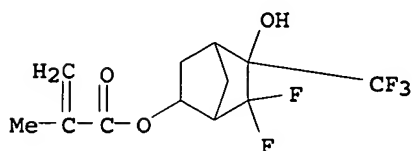
CN 2-Propenoic acid, 2-methyl-, 6,6-difluoro-5-hydroxy-5-

(trifluoromethyl)bicyclo[2.2.1]hept-2-yl ester, polymer with
3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl 2-methyl-2-propenoate and
1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate
(9CI) (CA INDEX NAME)

CM 1

CRN 849803-71-0

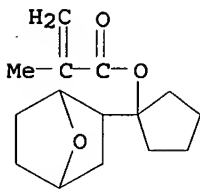
CMF C12 H13 F5 O3



CM 2

CRN 676456-72-7

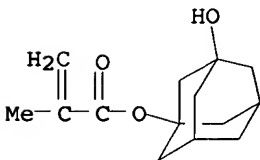
CMF C15 H22 O3



CM 3

CRN 115372-36-6

CMF C14 H20 O3



IC ICM C08F220-18

ICS G03F007-033; G03F007-039; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and
Other Reprographic Processes)

Section cross-reference(s): 38

IT 851866-57-4P 851866-58-5P 851866-59-6P

851866-60-9P 851866-61-0P 851866-62-1P

851866-63-2P

RL: IMF (Industrial manufacture); TEM (Technical or engineered
material use); PREP (Preparation); USES (Uses)

(acrylic polymers having specific acid-labile groups for chemical
amplified pos.. photoresists)

L22 ANSWER 2 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:428605 HCAPLUS

DOCUMENT NUMBER: 142:472603
 TITLE: Chemical amplification-type positive resist materials and pattern formation
 INVENTOR(S): Hatakeyama, Jun; Kawai, Yoshio
 PATENT ASSIGNEE(S): Shin-Etsu Chemical Industry Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 42 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005128146	A2	20050519	JP 2003-361849	2003 1022

PRIORITY APPLN. INFO.: JP 2003-361849
 2003
 1022

OTHER SOURCE(S): MARPAT 142:472603

AB The resist materials comprise (A) ≥ 1 base polymers selected from poly(acrylic acids), their derivs., cycloolefin derivative-maleic anhydride alternating copolymers, cycloolefin derivative-maleic anhydride-acrylic acid derivative copolymers, cycloolefin derivative-maleimide alternating copolymers, cycloolefin derivative-maleimide-acrylic acid derivative copolymers, polynorbornenes, and metathesis ring-opening polymers, (B) $R_4[R_3C(OH)R_1R_2]_n$ ($R_1, R_2 = H, F, C1-4$ alkyl, fluorinated alkyl; R_1 and/or $R_2 = F$ -containing group; $R_3 =$ single bond, $C1-4$ alkylene; $R_4 = C4-20$ n-valent cycloalkyl; R_4 may contain OH, ether, ester, CO, lactone group; $n = 1-4$), (C) organic solvents, and (D) acid generators. Patterns are formed by applying the materials on substrates, heating, exposing to high-energy ray or electron beam via photomasks, heating as necessary, and developing. The materials show low line-edge roughness and decreased development residues caused by swelling in development measured by QCM (quartz crystal microbalance) method.

IT 851473-87-5

RL: TEM (Technical or engineered material use); USES (Uses)
 (chemical amplification-type pos. resists with low swelling in development for fine pattern formation)

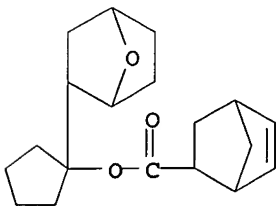
RN 851473-87-5 HCAPLUS

CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, methyl ester, polymer with 2,5-furandione and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl bicyclo[2.2.1]hept-5-ene-2-carboxylate (9CI) (CA INDEX NAME)

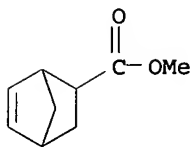
CM 1

CRN 676456-74-9

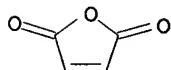
CMF C19 H26 O3



CM 2

CRN 6203-08-3
CMF C9 H12 O2

CM 3

CRN 108-31-6
CMF C4 H2 O3

IC ICM G03F007-004
ICS G03F007-039; H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
IT 368872-75-7 485819-05-4 485819-08-7 851473-87-5
RL: TEM (Technical or engineered material use); USES (Uses)
(chemical amplification-type pos. resists with low swelling in development for fine pattern formation)

L22 ANSWER 3 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:238524 HCAPLUS
DOCUMENT NUMBER: 142:325926
TITLE: Polymer, resist composition and patterning process
INVENTOR(S): Tachibana, Seichiro; Nishi, Tsunehiro; Kobayashi, Tomohiro
PATENT ASSIGNEE(S): Japan
SOURCE: U.S. Pat. Appl. Publ., 46 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2005058938	A1	20050317	US 2004-936753	2004 0909
JP 2005105260	A2	20050421	JP 2004-259293	2004 0907
PRIORITY APPLN. INFO.:			JP 2003-320659	A 2003 0912

GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT
*

AB A polymer comprises recurring units of formulas I, II, III, IV (R1-3,4,7 = H, Me; R2 = acid labile group; R5,6 = H, hydroxyl; R8 = lactone structure group) and has a Mw of 1,000-50,000. A resist composition comprising the inventive polymer has a sensitivity to high-energy radiation, improved resolution and etching resistance and lends itself to lithog. micropatterning with electron beams or deep UV.

IT 848134-66-7P 848134-67-8P 848134-73-6P
848134-74-7P 848134-79-2P 848134-80-5P
848144-03-6P

RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (polymer, resist composition for patterning process)

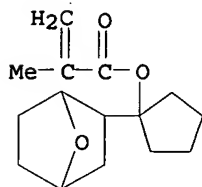
RN 848134-66-7 HCAPLUS

CN 3,5-Methano-2H-cyclopenta[b]furan-7-carboxylic acid, hexahydro-6-[(2-methyl-1-oxo-2-propenyl)oxy]-2-oxo-, methyl ester, polymer with 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl 2-methyl-2-propenoate, 2-methyl-2-propenoic acid and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

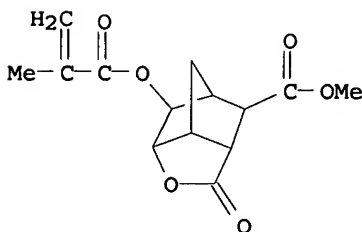
CMF C15 H22 O3



CM 2

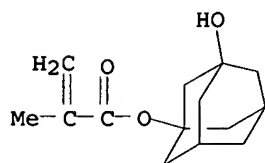
CRN 274247-93-7

CMF C14 H16 O6



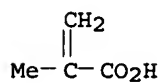
CM 3

CRN 115372-36-6
CMF C14 H20 O3



CM 4

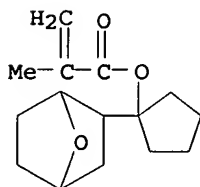
CRN 79-41-4
CMF C4 H6 O2



RN 848134-67-8 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, polymer with hexahydro-5-oxo-2,6-methanofuro[3,2-b]furan-3-yl 2-methyl-2-propenoate, 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl 2-methyl-2-propenoate and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

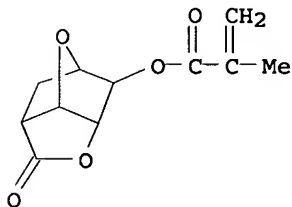
CM 1

CRN 676456-72-7
CMF C15 H22 O3



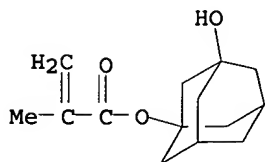
CM 2

CRN 274248-05-4
CMF C11 H12 O5



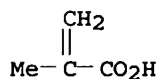
CM 3

CRN 115372-36-6
CMF C14 H20 O3



CM 4

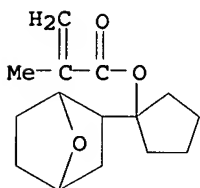
CRN 79-41-4
CMF C4 H6 O2



RN 848134-73-6 HCAPLUS
CN 3,5-Methano-2H-cyclopenta[b]furan-7-carboxylic acid,
hexahydro-6-[(2-methyl-1-oxo-2-propenyl)oxy]-2-oxo-, methyl ester,
polymer with 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl 2-propenoate,
2-methyl-2-propenoic acid and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

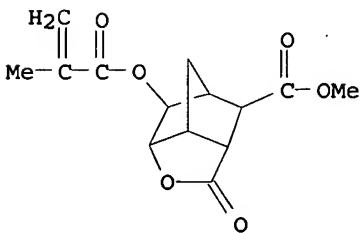
CM 1

CRN 676456-72-7
CMF C15 H22 O3

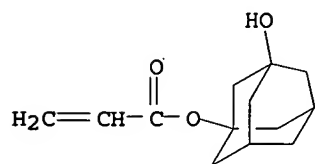


CM 2

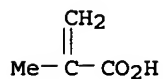
CRN 274247-93-7
CMF C14 H16 O6



CM 3

CRN 216581-76-9
CMF C13 H18 O3

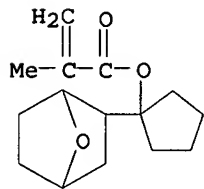
CM 4

CRN 79-41-4
CMF C4 H6 O2

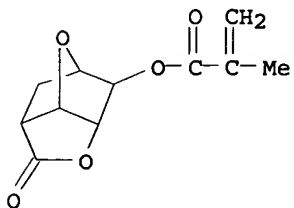
RN 848134-74-7 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, polymer with hexahydro-5-oxo-2,6-methanofuro[3,2-b]furan-3-yl 2-methyl-2-propenoate, 3-hydroxytricyclo[3.3.1.1.3,7]dec-1-yl 2-propenoate and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7
CMF C15 H22 O3

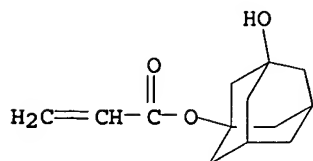
CM 2

CRN 274248-05-4
CMF C11 H12 O5

CM 3

CRN 216581-76-9

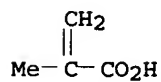
CMF C13 H18 O3



CM 4

CRN 79-41-4

CMF C4 H6 O2



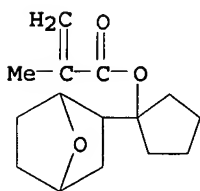
RN 848134-79-2 HCAPLUS

CN 3,5-Methano-2H-cyclopenta[b]furan-7-carboxylic acid,
 hexahydro-2-oxo-6-[(1-oxo-2-propenyl)oxy]-, methyl ester, polymer
 with 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl 2-propenoate,
 2-methyl-2-propenoic acid and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

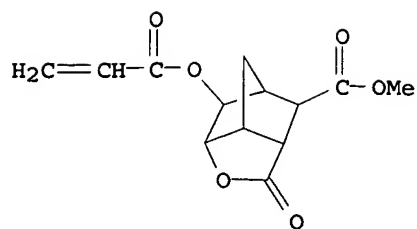
CMF C15 H22 O3



CM 2

CRN 449759-66-4

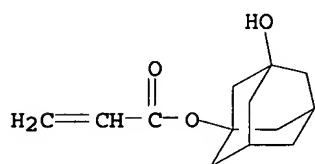
CMF C13 H14 O6



CM 3

CRN 216581-76-9

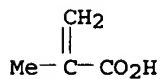
CMF C13 H18 O3



CM 4

CRN 79-41-4

CMF C4 H6 O2



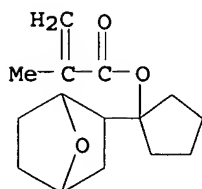
RN 848134-80-5 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, polymer with hexahydro-2-oxo-2,6-methanofuro[3,2-b]furan-6-yl 2-propenoate, 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl 2-propenoate and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

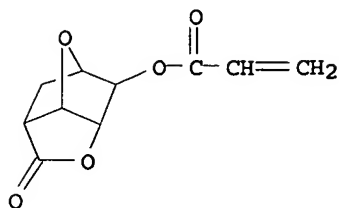
CMF C15 H22 O3



CM 2

CRN 500556-61-6

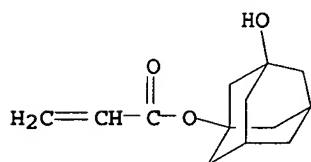
CMF C10 H10 O5



CM 3

CRN 216581-76-9

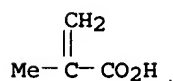
CMF C13 H18 O3



CM 4

CRN 79-41-4

CMF C4 H6 O2



RN 848144-03-6 HCAPLUS

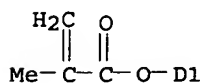
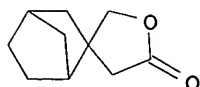
CN 2-Propenoic acid, 2-methyl-, polymer with dihydro-2'-oxospiro[bicyclo[2.2.1]heptane-2,3' (2'H)-furan]-5(or 6)-yl 2-methyl-2-propenoate, dihydro-5'-oxospiro[bicyclo[2.2.1]heptane-2,3' (2'H)-furan]-5(or 6)-yl 2-methyl-2-propenoate, 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl 2-methyl-2-propenoate and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 848143-98-6

CMF C14 H18 O4

CCI IDS

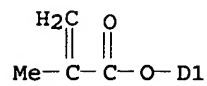
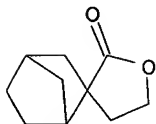


CM 2

CRN 848143-97-5

CMF C14 H18 O4

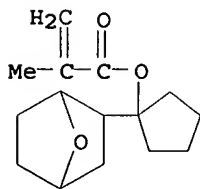
CCI IDS



CM 3

CRN 676456-72-7

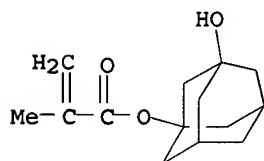
CMF C15 H22 O3



CM 4

CRN 115372-36-6

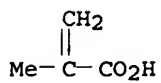
CMF C14 H20 O3



CM 5

CRN 79-41-4

CMF C4 H6 O2



IC ICM G03C001-76

INCL 430270100

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 35, 38

IT 485819-05-4P 651043-12-8P 651043-87-7P 811440-94-5P
 848134-56-5P 848134-57-6P 848134-58-7P 848134-59-8P
 848134-60-1P 848134-61-2P 848134-62-3P 848134-63-4P
 848134-65-6P 848134-66-7P 848134-67-8P
 848134-68-9P 848134-69-0P 848134-70-3P 848134-71-4P
 848134-72-5P 848134-73-6P 848134-74-7P
 848134-75-8P 848134-76-9P 848134-77-0P 848134-78-1P
 848134-79-2P 848134-80-5P 848134-81-6P
 848134-82-7P 848134-83-8P 848134-84-9P 848134-85-0P
 848134-86-1P 848134-87-2P 848134-88-3P 848143-99-7P
 848144-00-3P 848144-01-4P 848144-02-5P 848144-03-6P

RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (polymer, resist composition for patterning process)

L22 ANSWER 4 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:135758 HCAPLUS

DOCUMENT NUMBER: 142:228725

TITLE: Oxygen plasma-resistant radiation-sensitive resists, their patterning, and macromolecules therefor

INVENTOR(S): Hatakeyama, Jun; Takeda, Takanobu; Watanabe, Osamu

PATENT ASSIGNEE(S): Shin-Etsu Chemical Industry Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 72 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

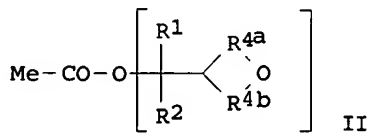
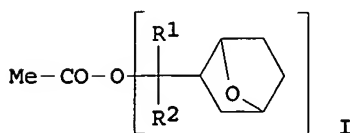
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005042085	A2	20050217	JP 2004-14354	2004 0122
US 2005260521	A1	20051124	US 2004-765919	2004 0129
PRIORITY APPLN. INFO.:			JP 2003-21416	A 2003 0130
			JP 2003-194033	A 2003 0709

GI



AB The macromols. have Si-bearing repeating unit and unit (i) MeCO₂[CR₁R₂(AlR₃)] [Al = (tetrahydro)furandiyl, oxanorbornenediyl; R₁, R₂ = C₁-10 hydrocarbyl; R₃ = H, C₁-10 hydrocarbyl], (ii) I (R'₁, R'₂ = C₁-10 hydrocarbyl), and/or (iii) II [R'₁, R'₂ = C₁-10 hydrocarbyl; C₁-10 hydrocarbyl; R_{4a}, R_{4b} = single bond, C₁-4 alk(ne)ylene within total C number of 3-60]. Pos.-working (chemical-amplified) resists containing the macromols., and their patterning with ≤300-nm high-energy or electron beams are also claimed. The resist patterns are resistant against O plasma and Cl- or Br-containing gas etchants.

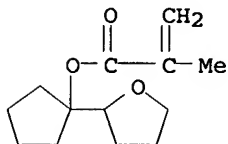
IT 843647-82-5P 843647-84-7P 843647-85-8P
843647-86-9P 843647-87-0P 843647-88-1P
843647-89-2P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(photoresists; Si- and prescribed cyclic group-containing polymers for oxygen plasma-resistant pos. photoresists)

RN 843647-82-5 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1-(tetrahydro-2-furanyl)cyclopentyl ester, polymer with 4-ethenylphenol and 2-[2,2,2-trimethyl-1,1-bis(trimethylsilyl)disilanyl]ethyl 2-methyl-2-propenoate (9CI)
(CA INDEX NAME)

CM 1

CRN 819837-30-4

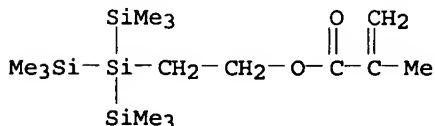
CMF C13 H20 O3



CM 2

CRN 211369-53-8

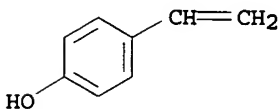
CMF C15 H36 O2 Si4



CM 3

CRN 2628-17-3

CMF C8 H8 O



RN 843647-84-7 HCAPLUS

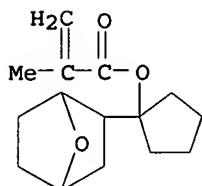
CN 2-Propenoic acid, 2-methyl-, 1-(7-oxabicyclo[2.2.1]hept-2-

yl)cyclopentyl ester, polymer with 4-ethenylphenol and
2-[2,2,2-trimethyl-1,1-bis(trimethylsilyl)disilanyl]ethyl
2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

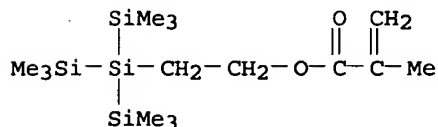
CMF C15 H22 O3



CM 2

CRN 211369-53-8

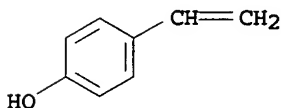
CMF C15 H36 O2 Si4



CM 3

CRN 2628-17-3

CMF C8 H8 O



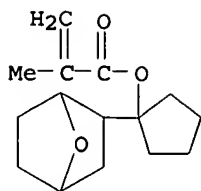
RN 843647-85-8 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, hexahydro-5-oxo-2,6-methanofuro[3,2-b]furan-3-yl ester, polymer with 4-ethenylphenol,
1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate
and 2-[2,2,2-trimethyl-1,1-bis(trimethylsilyl)disilanyl]ethyl
2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

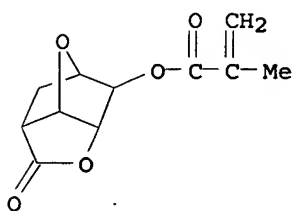
CMF C15 H22 O3



CM 2

CRN 274248-05-4

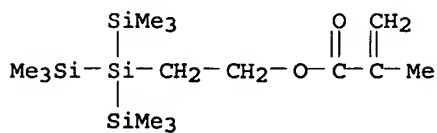
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CM 3

CRN 211369-53-8

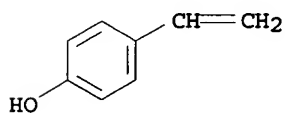
CMF C15 H36 O2 Si4



CM 4

CRN 2628-17-3

CMF C8 H8 O



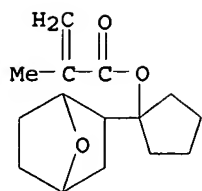
RN 843647-86-9 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl ester, polymer with ethenylheptamethylcyclotetrasiloxane and 2,5-furandione (9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

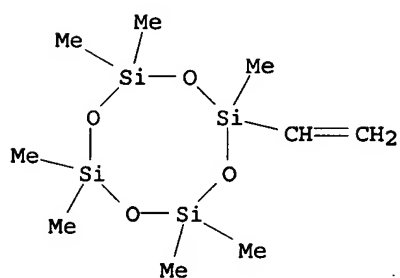
CMF C15 H22 O3



CM 2

CRN 3763-39-1

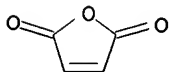
CMF C9 H24 O4 Si4



CM 3

CRN 108-31-6

CMF C4 H2 O3



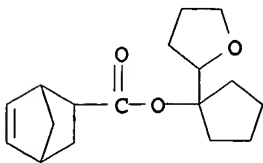
RN 843647-87-0 HCAPLUS

CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 1-(tetrahydro-2-furanyl)cyclopentyl ester, polymer with ethenylheptamethylcyclotetrasiloxane, 2,5-furandione and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

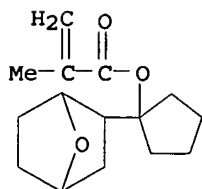
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CMF C17 H24 O3



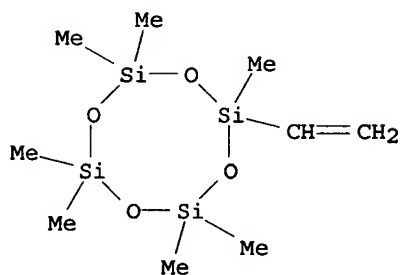
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CRN 676456-72-7
CMF C15 H22 O3



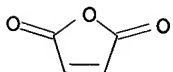
CM 3

CRN 3763-39-1
CMF C9 H24 O4 Si4



CM 4

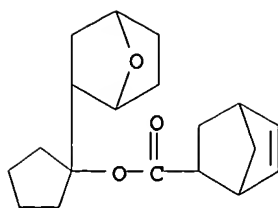
CRN 108-31-6
CMF C4 H2 O3



RN 843647-88-1 HCAPLUS
CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl ester, polymer with 2,5-furandione and hexahydro-5-oxo-2,6-methanofuro[3,2-b]furan-3-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

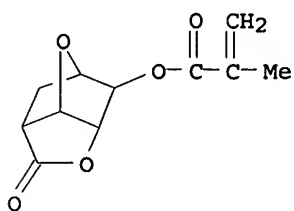
CRN 676456-74-9
CMF C19 H26 O3



CM 2

CRN 274248-05-4

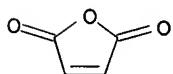
CMF C11 H12 O5



CM 3

CRN 108-31-6

CMF C4 H2 O3



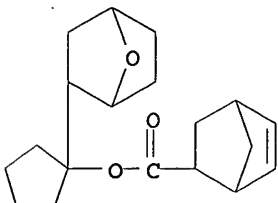
RN 843647-89-2 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-(heptacyclopentylpentacyclo[9.5.1.1.1.3,9.15,15.17,13]octasiloxanyl)propyl ester, polymer with hexahydro-5-oxo-2,6-methanofuro[3,2-b]furan-3-yl 2-methyl-2-propenoate and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl bicyclo[2.2.1]hept-5-ene-2-carboxylate (9CI) (CA INDEX NAME)

CM 1

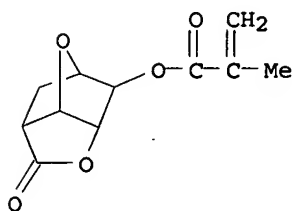
CRN 676456-74-9

CMF C19 H26 O3



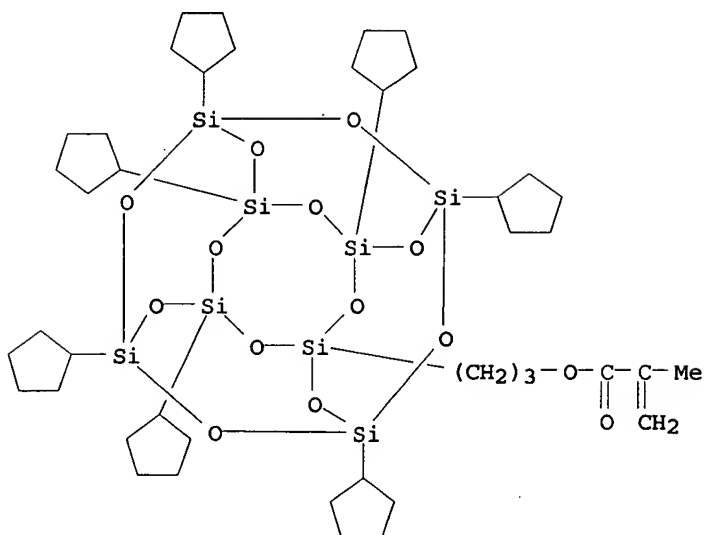
CM 2

CRN 274248-05-4
CMF C11 H12 O5



CM 3

CRN 169391-91-7
CMF C42 H74 O14 Si8



IC ICM C08F230-08
ICS G03F007-039; G03F007-075; H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 38
IT 843647-82-5P 843647-84-7P 843647-85-8P
843647-86-9P 843647-87-0P 843647-88-1P
843647-89-2P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(photoresists; Si- and prescribed cyclic group-containing polymers for oxygen plasma-resistant pos. photoresists)

L22 ANSWER 5 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:33606 HCAPLUS

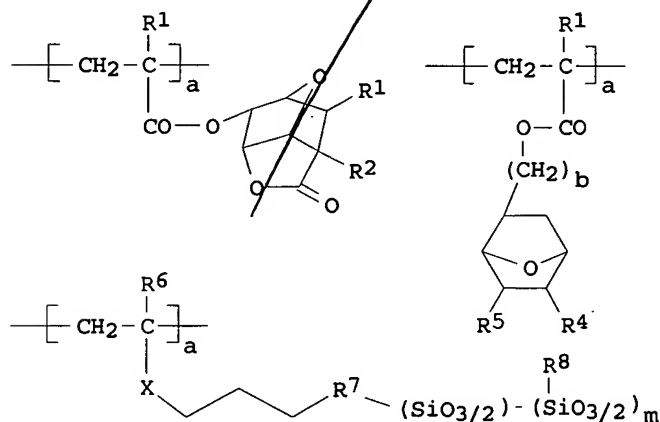
DOCUMENT NUMBER: 142:103181

TITLE: Acrylic polymers, their chemically amplified positive photoresists with high resolution and sensitivity and suppressed line edge roughness, and photolithography using them
INVENTOR(S): Hatakeyama, Jun; Watanabe, Takeshi; Takeda,

PATENT ASSIGNEE(S): Takanobu
 SOURCE: Shin-Etsu Chemical Industry Co., Ltd., Japan
 Jpn. Kokai Tokkyo Koho, 58 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005008765	A2	20050113	JP 2003-174894	2003 0619
PRIORITY APPLN. INFO.:			JP 2003-174894	2003 0619

GI



I

AB The acrylic polymers contain repeating units I [R1, R6 = H, Me, F, CF3, CN, CH2CO2R12, CH2OR13; R2 = H, Me, CN; R3 = H, ester; R4, R5 = H, ester, lactone-containing group; R8 = H, C1-10 alkyl, fluorinated alkyl; R7 = single bond, (SiR9R10R11)n; R9, R10 = C1-10 alkyl; R11 = single bond, O, C1-4 alkylene; X = ester, ether; a, b ≥ 0; c > 0; 0 < (a + b)/(a + b + c) < 0.8; 0 < c/(a + b + c) < 0.5; m = 4-40; n = 1-20; p = 0-2; R12 = C1-4 alkyl; R13 = H, C1-4 alkyl, C1-4 acyl] and other repeating units that increase alkali solubility of the polymers in the presence of acids. The photolithog. may involve etching with O plasma or halogen gases containing Cl or Br.

IT 819837-31-5P 819837-32-6P

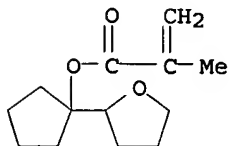
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(acrylic polymers having oxonorborene and polyhedral oligosilsesquioxane pendants for pos. photoresists with high resolution and suppressed line edge roughness)

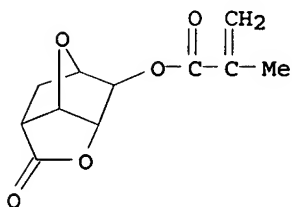
RN 819837-31-5 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-(heptacyclopentylpentacyclo[9.5.1.1.3,9.15,15.17,13]octasiloxanyl)propyl ester, polymer with hexahydro-5-oxo-2,6-methanofuro[3,2-b]furan-3-yl 2-methyl-2-propenoate and 1-(tetrahydro-2-furanyl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

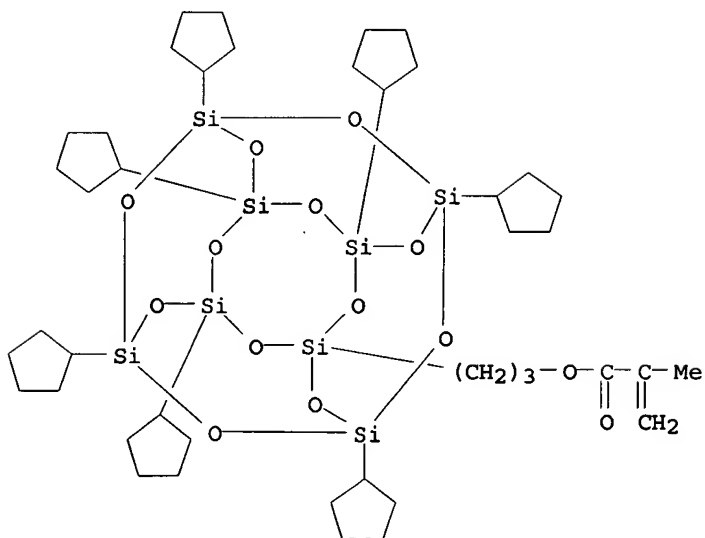
CRN 819837-30-4
CMF C13 H20 O3



CRN 274248-05-4
CMF C11 H12 O5



CRN 169391-91-7
CMF C42 H74 O14 Si8



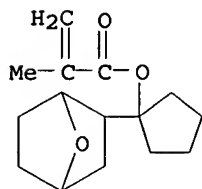
RN	819837-32-6	HCAPLUS
CN	2-Propenoic acid, 2-methyl-, 3-(heptacyclopentylpentacyclo[9.5.1.1 3,9.15,15.17,13]octasiloxanyl)propyl ester, polymer with hexahydro-5-oxo-2,6-methanofuro[3,2-b]furan-3-yl 2-methyl-2-propenoate and 1-(7-oxabicyclo[2.2.1]hept-2-	

yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

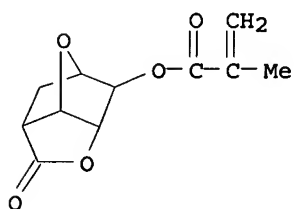
CMF C15 H22 O3



CM 2

CRN 274248-05-4

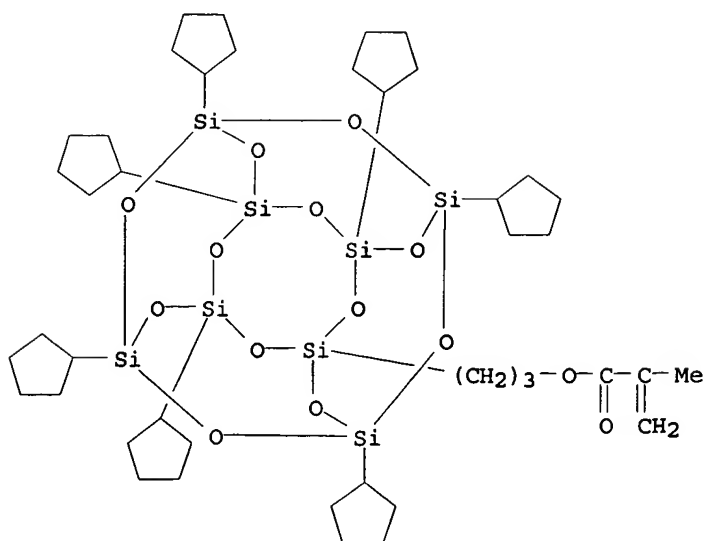
CMF C11 H12 O5



CM 3

CRN 169391-91-7

CMF C42 H74 O14 Si8



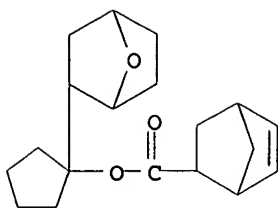
IC ICM C08F230-08

ICS G03F007-039; G03F007-075
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and
Other Reprographic Processes)
Section cross-reference(s): 38
IT 819837-18-8P 819837-20-2P 819837-22-4P 819837-23-5P
819837-25-7P 819837-27-9P 819837-29-1P 819837-31-5P
819837-32-6P 819837-34-8P
RL: IMF (Industrial manufacture); TEM (Technical or engineered
material use); PREP (Preparation); USES (Uses)
(acrylic polymers having oxonorborene and polyhedral
oligosilsesquioxane pendants for pos. photoresists with high
resolution and suppressed line edge roughness)
L22 ANSWER 6 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:1036753 HCAPLUS
DOCUMENT NUMBER: 142:30014
TITLE: Silicon-containing polymer, resist composition
and patterning process
INVENTOR(S): Hatakeyama, Jun; Takeda, Takanobu
PATENT ASSIGNEE(S): Shin-Etsu Chemical Co., Ltd., Japan
SOURCE: U.S. Pat. Appl. Publ., 38 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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<u>US 2004242821</u>	A1	20041202	US 2004-853783	2004 0526
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US 6994946	B2	20060207		
JP 2004352743	A2	20041216	JP 2003-148656	2003 0527
PRIORITY APPLN. INFO.:			JP 2003-148656	A 2003 0527
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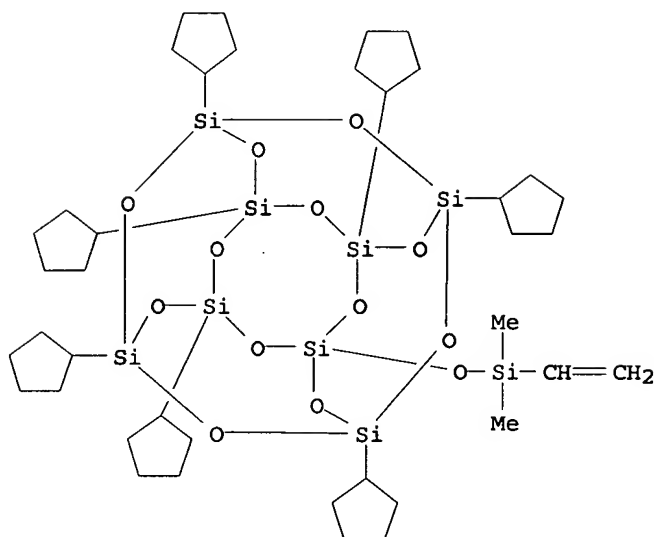
AB Novel silicon-containing polymers are provided comprising recurring
units having a POSS pendant and units which improve alkali solubility
under the action of an acid. Resist compns. comprising the
polymers are sensitive to high-energy radiation and have a high
sensitivity and resolution at a wavelength of up to 300 nm and
improved resistance to oxygen plasma etching.
IT 802917-23-3P
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical
or engineered material use); PREP (Preparation); USES (Uses)
(silicon-containing polymer, resist composition and patterning process)
RN 802917-23-3 HCAPLUS
CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 1-(7-
oxabicyclo[2.2.1]hept-2-yl)cyclopentyl ester, polymer with
2,5-furandione and heptacyclopentyl[(ethenyldimethylsilyl)oxy]pent
acyclo[9.5.1.13,9.15,15.17,13]octasiloxane (9CI) (CA INDEX NAME)
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CRN 676456-74-9
CMF C19 H26 O3



CM 2

CRN 312693-40-6

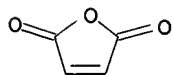
CMF C39 H72 O13 Si9



CM 3

CRN 108-31-6

CMF C4 H2 O3



IC ICM G03F007-004

ICS C08F122-04; C08F222-04

INCL 526250000; X43-027.01; X43-032.2; X43-033.0; X52-627.1; X52-627.9

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 38

IT 802917-18-6P 802917-19-7P 802917-20-0P 802917-21-1P

802917-22-2P 802917-23-3P 802917-24-4P 802917-25-5P

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(silicon-containing polymer, resist composition and patterning process)

REFERENCE COUNT: 44 THERE ARE 44 CITED REFERENCES AVAILABLE

FOR THIS RECORD. ALL CITATIONS AVAILABLE

IN THE RE FORMAT

L22 ANSWER 7 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:1012045 HCAPLUS

DOCUMENT NUMBER: 142:13671

TITLE: Photosensitive resin composition

INVENTOR(S): Kanna, Shinichi; Mizutani, Kazuyoshi; Sasaki, Tomoya

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Eur. Pat. Appl., 133 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1480079	A2	20041124	EP 2004-19923	2003 0606

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R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,
MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ,
EE, HU, SK

JP 2004012898	A2	20040115	JP 2002-167393	2002 0607
JP 2004029111	A2	20040129	JP 2002-181384	2002 0621
JP 2004029136	A2	20040129	JP 2002-181588	2002 0621
EP 1376232	A1	20040102	EP 2003-12226	2003 0606

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R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,
MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ,
EE, HU, SK

PRIORITY APPLN. INFO.:	JP 2002-167393	A	2002 0607
	JP 2002-181384	A	2002 0621
	JP 2002-181588	A	2002 0621
	EP 2003-12226	A3	2003 0606

<--

AB The photosensitive resin composition of the present invention exhibits significant transmissibility at the use of an exposure light source of 160 nm or less, more specifically F2 excimer laser light, where line edge roughness and development time dependence are small and a problem of footing formation is improved. The photosensitive resin comprises a resin which decomps. by an action of acid to increase the solubility in alkali developer, in which the resin contains a specific repeat unit; a compound capable of

generating an acid upon irradiation with one of an actinic ray and a radiation, in which the compound includes at least two kinds of compds. selected from the group consisting of specific compds (B1), (B2), (B3) and (B4). (B1) is a compound capable of generating aliphatic or aromatic sulfonic acid substituted with at least one fluorine atom upon irradiation with one of an actinic ray and a radiation; (B2) is a compound capable of generating aliphatic or aromatic sulfonic acid containing no fluorine atom upon irradiation with one of an actinic ray and a radiation; (B3) is a compound capable of generating aliphatic or aromatic carboxylic acid substituted with at least one fluorine atom upon irradiation with one of an actinic ray and a radiation; and (B4) is a compound capable of generating aliphatic or aromatic carboxylic acid containing no fluorine atom. upon irradiation with one of an actinic ray and a radiation.

IT 798556-54-4

RL: PRP (Properties); TEM (Technical or engineered material use);

USES (Uses)

(photosensitive resin composition)

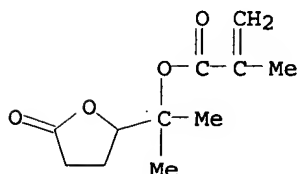
RN 798556-54-4 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(tetrahydro-5-oxo-2-furanyl)ethyl ester, polymer with α -(difluoromethyl)-4-ethenyl- α -(trifluoromethyl)benzenemethanol and 1-[1-(4-ethenylphenoxy)-1-methylethyl]tricyclo[3.3.1.1^{3,7}]decane (9CI) (CA INDEX NAME)

CM 1

CRN 798556-53-3

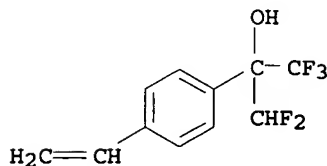
CMF C11 H16 O4



CM 2

CRN 485390-53-2

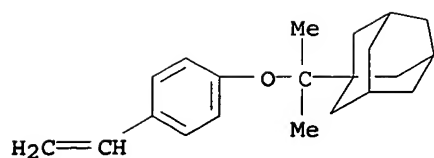
CMF C11 H9 F5 O



CM 3

CRN 430437-25-5

CMF C21 H28 O



IC ICM G03F007-039

ICS G03F007-004

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 38

IT 143336-94-1 367522-49-4 370102-83-3 370866-15-2
 430437-13-1 430437-14-2 430437-15-3 430437-18-6
 430437-19-7 430437-21-1 430437-24-4 430437-27-7
 430437-29-9 430437-33-5 430437-34-6 430437-35-7
 430437-36-8 430437-38-0 430437-39-1 430437-40-4
 485390-41-8 485390-43-0 485390-44-1 485390-45-2
 485390-46-3 485390-47-4 485390-49-6 485390-52-1
 485390-55-4 485390-56-5 485390-57-6 485390-58-7
 485390-62-3 485390-63-4 485390-64-5 485390-65-6
 485390-66-7 485390-67-8 485390-68-9 485390-69-0
 487048-93-1 500212-80-6 500212-86-2 500212-88-4
 518027-87-7 524952-70-3 607710-77-0 637351-57-6
 798556-54-4 798556-55-5 798556-56-6 798556-57-7
 798556-61-3 798556-62-4 798556-63-5 798556-64-6
 798556-65-7 798556-66-8 798556-67-9 798556-68-0
 798556-69-1 798556-70-4 798556-71-5 798556-72-6
 798556-73-7 798556-75-9 798556-76-0 798556-77-1
 798556-85-1 798556-86-2 798556-88-4 798556-90-8
 798556-91-9 798556-92-0 798556-93-1

RL: PRP (Properties); TEM (Technical or engineered material use);

USES (Uses)

(photosensitive resin composition)

L22 ANSWER 8 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:261017 HCAPLUS

DOCUMENT NUMBER: 140:311986

TITLE: Ester compounds, polymers, resist compositions and patterning process

INVENTOR(S): Hasegawa, K.; Kinsho, T.; Watanabe, T.

PATENT ASSIGNEE(S): Shin-Etsu Chemical Co., Ltd., Japan

SOURCE: Eur. Pat. Appl., 48 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1403295	A2	20040331	EP 2003-256075	2003 0926
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EP 1403295	A3	20040414		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
JP 2004143153	A2	20040520	JP 2003-330904	2003 0924
<--				

US 2004068124

A1

20040408

US 2003-671948

2003

0929

PRIORITY APPLN. INFO.:

JP 2002-285161

A

2002

0930

OTHER SOURCE(S):

MARPAT 140:311986

AB The present invention relates to novel ester compds. having formula: $\text{AlC(=O)OCR}_1\text{R}_2\text{A}_2\text{-R}_3$ (A_1 = polymerizable functional group having a double bond; A_2 = furan-diyl, tetrahydrofurandiyl or oxa-norbornane-diyl; $\text{R}_1,2$ = monovalent hydrocarbon group, or R_1 and R_2 may bond together to form an aliphatic hydrocarbon ring with the carbon atom; R_3 = hydrogen or a monovalent hydrocarbon group which may contain a hetero atom are polymerizable into polymers). Resist compns. comprising the polymers are sensitive to high-energy radiation, have an improved sensitivity, resolution, and etching resistance, and lend themselves to micropatterning with electron beams or deep-UV rays.

IT 676456-75-0P 676456-76-1P 676456-77-2P

676456-78-3P 676456-79-4P 676456-80-7P

676456-81-8P

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (ester compds. for polymers and photoresist compns.)

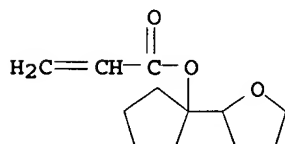
RN 676456-75-0 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-6-yl ester, polymer with 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl 2-methyl-2-propenoate and 1-(tetrahydro-2-furanyl)cyclopentyl 2-propenoate (9CI) (CA INDEX NAME)

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CRN 676456-68-1

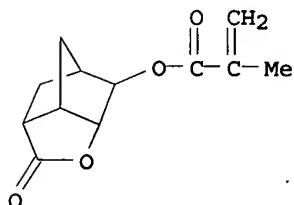
CMF C12 H18 O3



CM 2

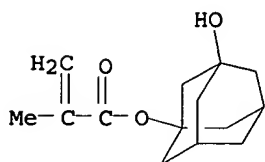
CRN 254900-07-7

CMF C12 H14 O4



CM 3

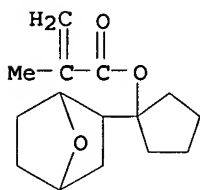
CRN 115372-36-6
CMF C14 H20 O3



RN 676456-76-1 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, hexahydro-5-oxo-2,6-methanofuro[3,2-b]furan-3-yl ester, polymer with 3-hydroxytricyclo[3.3.1.3.3]dec-1-yl 2-methyl-2-propenoate and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

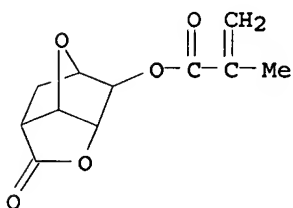
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CRN 676456-72-7
CMF C15 H22 O3



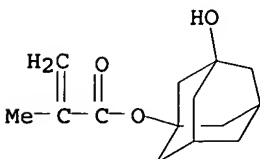
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CRN 274248-05-4
CMF C11 H12 O5



CM 3

CRN 115372-36-6
CMF C14 H20 O3

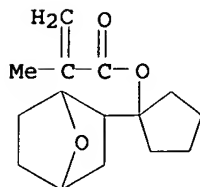


RN 676456-77-2 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl ester, polymer with 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate and tetrahydro-2-oxo-3-furanyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

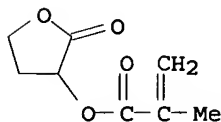
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CM 2

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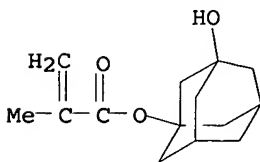
CMF C8 H10 O4



CM 3

CRN 115372-36-6

CMF C14 H20 O3

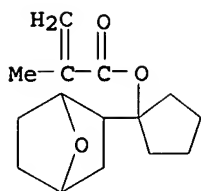


RN 676456-78-3 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, 2-ethyldecahydro-1,4:5,8-dimethanonaphthalen-2-yl ester, polymer with hexahydro-5-oxo-2,6-methanofuro[3,2-b]furan-3-yl 2-methyl-2-propenoate, 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl 2-methyl-2-propenoate and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

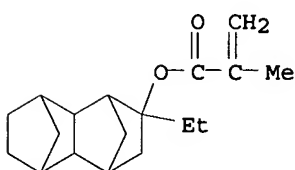
CMF C15 H22 O3



CM 2

CRN 485819-03-2

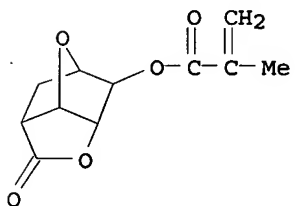
CMF C18 H26 O2



CM 3

CRN 274248-05-4

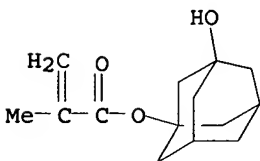
CMF C11 H12 O5



CM 4

CRN 115372-36-6

CMF C14 H20 O3

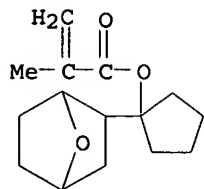


RN 676456-79-4 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-ethyltricyclo[3.3.1.13,7]dec-2-yl
 ester, polymer with 3-hydroxytricyclo[3.3.1.13,7]dec-1-yl
 2-methyl-2-propenoate, 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl
 2-methyl-2-propenoate and tetrahydro-2-oxo-3-furanyl
 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

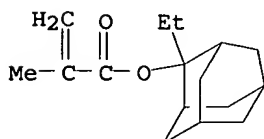
CM 1

CRN 676456-72-7
CMF C15 H22 O3



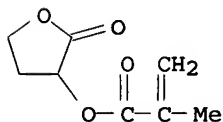
CM 2

CRN 209982-56-9
CMF C16 H24 O2



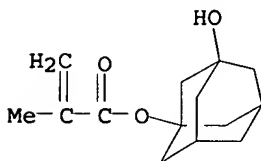
CM 3

CRN 195000-66-9
CMF C8 H10 O4



CM 4

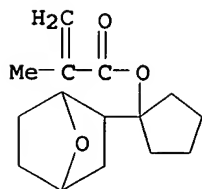
CRN 115372-36-6
CMF C14 H20 O3



RN 676456-80-7 HCAPLUS
CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, tetrahydro-2-oxo-3-furanyl ester, polymer with 2,5-furandione and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

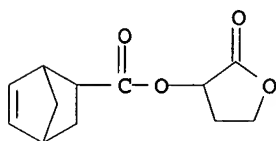
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CRN 676456-72-7
CMF C15 H22 O3



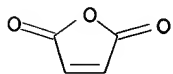
CM 2

CRN 264193-09-1
CMF C12 H14 O4



CM 3

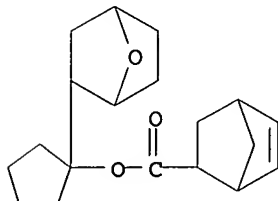
CRN 108-31-6
CMF C4 H2 O3



RN 676456-81-8 HCAPLUS
CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl ester, polymer with 2,5-furandione and tetrahydro-2-oxo-3-furanyl bicyclo[2.2.1]hept-5-ene-2-carboxylate (9CI) (CA INDEX NAME)

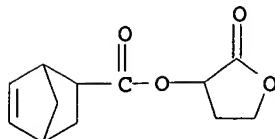
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CRN 676456-74-9
CMF C19 H26 O3



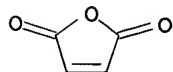
CM 2

CRN 264193-09-1
CMF C12 H14 O4



CM 3

CRN 108-31-6
CMF C4 H2 O3



IC ICM C08F020-30
ICS C08F032-08; G03F007-039
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 35, 38
IT 676456-75-0P 676456-76-1P 676456-77-2P
676456-78-3P 676456-79-4P 676456-80-7P
676456-81-8P
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (ester compds. for polymers and photoresist compns.)

L22 ANSWER 9 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:77035 HCAPLUS

DOCUMENT NUMBER: 140:136429

TITLE: Positive radiation-sensitive resist compositions with excellent sensitivity, resolution, and adhesion to substrates
INVENTOR(S): Senoo, Masahide; Tamura, Kazutaka; Nio, Hiroyuki

PATENT ASSIGNEE(S): Toray Industries, Inc., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 17 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2004029437	A2	20040129	JP 2002-186416	2002 0626

PRIORITY APPLN. INFO.: <-- JP 2002-186416

2002
0626

AB The compns., useful for patterning with electron beams or x-ray beams, contain polymers (A) bearing units becoming alkali soluble by

acids, lactone units, and phenolic OH groups and photoacid generators (B).

IT 649758-28-1P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(chemical amplified pos. resists with good sensitivity to electron beams or x-ray beams, resolution, and adhesion to substrates)

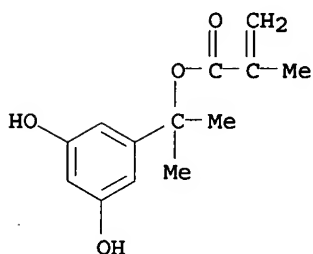
RN 649758-28-1 HCAPLUS

CN 2-Propenoic acid, 2-cyano-, 1,1-diphenylethyl ester, polymer with 1-(3,5-dihydroxyphenyl)-1-methylethyl 2-methyl-2-propenoate and 1-methyl-1-(tetrahydro-2-oxo-3-furanyl)ethyl 2-propenoate (9CI)
(CA INDEX NAME)

CM 1

CRN 649758-27-0

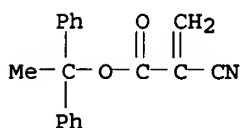
CMF C13 H16 O4



CM 2

CRN 393178-25-1

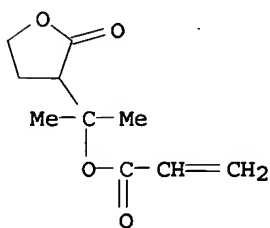
CMF C18 H15 N O2



CM 3

CRN 239784-43-1

CMF C10 H14 O4



IC ICM G03F007-039

ICS C08F212-14; C08F220-16; C08F220-28; C08F220-30; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and

Other Reprographic Processes)

IT 610271-09-5P 649758-26-9P 649758-28-1P 649758-30-5P
 649758-31-6P 649758-32-7P 649758-33-8P
 RL: IMF (Industrial manufacture); TEM (Technical or engineered
 material use); PREP (Preparation); USES (Uses)
 (chemical amplified pos. resists with good sensitivity to electron
 beams or x-ray beams, resolution, and adhesion to substrates)

L22 ANSWER 10 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:5239 HCAPLUS

DOCUMENT NUMBER: 140:67635

TITLE: Photosensitive resin composition

INVENTOR(S): Kanna, Shinichi; Mizutani, Kazuyoshi; Sasaki,
Tomoya

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Eur. Pat. Appl., 136 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1376232	A1	20040102	EP 2003-12226	2003 0606

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R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,
 MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ,
 EE, HU, SK

JP 2004012898	A2	20040115	JP 2002-167393	2002 0607
JP 2004029111	A2	20040129	JP 2002-181384	2002 0621
JP 2004029136	A2	20040129	JP 2002-181588	2002 0621
US 2004009430	A1	20040115	US 2003-455459	2003 0606

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EP 1480079	A2	20041124	EP 2004-19923	2003 0606
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R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,
 MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ,
 EE, HU, SK

PRIORITY APPLN. INFO.:	JP 2002-167393	A	2002 0607
	JP 2002-181384	A	2002 0621
	JP 2002-181588	A	2002 0621
	EP 2003-12226	A3	2003

0606

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AB The photosensitive resin composition of the present invention is an excellent photosensitive resin composition: exhibiting significant transmissibility at the use of an exposure light source of 160 nm or less, more specifically F2 excimer laser light, where line edge roughness and development time dependence are small and a problem of footing formation is improved; and comprising a resin which decomps. by an action of acid to increase the solubility in alkali developer, in which the resin contains a specific repeat unit; a compound capable of generating an acid upon irradiation with one of an actinic ray and a radiation.

IT 629648-90-4P

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (microlithog. photosensitive resin composition containing)

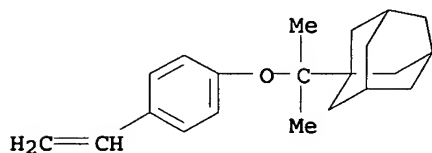
RN 629648-90-4 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl ester, polymer with 4-ethenyl- α -methyl- α -(trifluoromethyl)benzenemethanol and 1-[1-(4-ethenylphenoxy)-1-methylethyl]tricyclo[3.3.1.1^{3,7}]decane (9CI) (CA INDEX NAME)

CM 1

CRN 430437-25-5

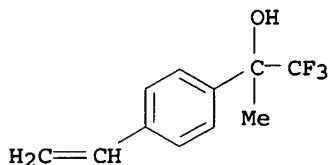
CMF C21 H28 O



CM 2

CRN 397287-76-2

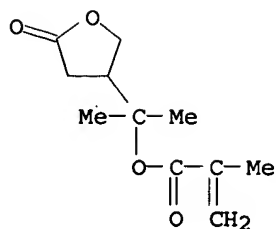
CMF C11 H11 F3 O



CM 3

CRN 280566-59-8

CMF C11 H16 O4



IC ICM G03F007-039

ICS G03F007-004

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 35, 38, 76

IT 367522-49-4P 370102-83-3P 485390-41-8P 485390-42-9P
 485390-43-0P 485390-45-2P 485390-46-3P 485390-47-4P
 485390-49-6P 485390-52-1P 485390-57-6P 485390-58-7P
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 637351-27-0P 637351-28-1P 637351-29-2P 637351-30-5P
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 637351-40-7P 637351-41-8P 637351-42-9P 637351-43-0P
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 637351-48-5P 637351-49-6P 637351-51-0P 637351-53-2P
 637351-55-4P 637351-57-6P 637351-58-7P

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (microlithog. photosensitive resin composition containing)

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 11 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:945845 HCAPLUS

DOCUMENT NUMBER: 140:21261

TITLE: Photosensitive resin composition for photolithography

INVENTOR(S): Kanna, Shinichi; Mizutani, Kazuyoshi; Sasaki, Tomoya

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 71 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003344994	A2	20031203	JP 2002-154391	2002 0528

PRIORITY APPLN. INFO.: JP 2002-154391

2002 0528

AB The composition contains (A) a polymer with repeating unit R50R51R52CC(OR40)CR53R54R55 [R50-55 = H, F, (substituted) alkyl; ≥1 of R50-55 is F or F-substituted alkyl; R40 = H,

(substituted) (cyclo)alkyl, (substituted) acyl, (substituted) alkoxy carbonyl, CR41R42(OR43); R41-42 = H, (substituted) (cyclo)alkyl; R43 = (substituted) (cyclo)alkyl, (substituted) aralkyl, (substituted) aryl; 2 of R41-43 may bond to form a ring], which decomps. by the action of acid and increases its solubility to alkali developer, (B) a compound generating acid by irradiation of actinic ray, and (C) a solvent having ≥ 1 F in a mol. The composition shows good solvent solubility, coat ability, improved line edge roughness, and without striation, and is useful for photolithog. in manufacture of large-scaled integrates, etc.

IT 629648-90-4

RL: TEM (Technical or engineered material use); USES (Uses)
(photoresist composition containing acid-decomposable polymer, acid generator, and F-containing solvent)

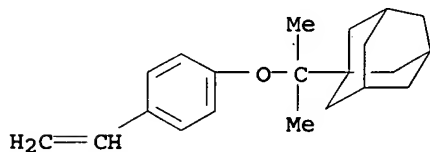
RN 629648-90-4 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl ester, polymer with 4-ethenyl- α -methyl- α -(trifluoromethyl)benzenemethanol and 1-[1-(4-ethenylphenoxy)-1-methylethyl]tricyclo[3.3.1.1^{3,7}]decane (9CI) (CA INDEX NAME)

CM 1

CRN 430437-25-5

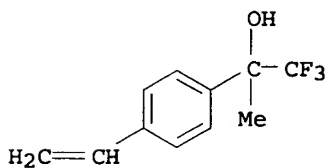
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CM 2

CRN 397287-76-2

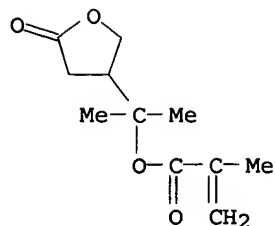
CMF C11 H11 F3 O



CM 3

CRN 280566-59-8

CMF C11 H16 O4



IC ICM G03F007-004
ICS G03F007-039; H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 38
IT 1511-10-0, Triphenylsulfonium trifluoroacetate 19600-49-8, Triphenylsulfonium acetate 143336-94-1 153698-46-5, Triphenylsulfonium pentafluorobenzenesulfonate 187082-74-2
241806-75-7 338445-29-7 365971-70-6 365971-71-7
367522-49-4 422508-63-2 444617-77-0 444617-78-1
485390-41-8 485390-44-1 485390-45-2 485390-46-3
485390-47-4 485390-49-6 485390-52-1 485390-55-4
485390-58-7 485390-60-1 485390-62-3 485390-63-4
485390-65-6 500212-80-6 500212-90-8 518027-87-7
629648-89-1 629648-90-4 629648-92-6 629648-93-7
629648-94-8 629648-95-9 629648-97-1 629648-99-3
629649-01-0 629649-02-1 629649-03-2 629649-04-3
RL: TEM (Technical or engineered material use); USES (Uses)
(photoresist composition containing acid-decomposable polymer, acid generator, and F-containing solvent)

L22 ANSWER 12 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2003:769109 HCAPLUS
DOCUMENT NUMBER: 139:277441
TITLE: Reworkable thermosetting resin compositions and compounds useful therein
INVENTOR(S): Klemarczyk, Philip T.; Gong, Lie-Zhong
PATENT ASSIGNEE(S): Henkel Loctite Corporation, USA
SOURCE: U.S., 17 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6627683	B1	20030930	US 2000-885270	2000 0905

PRIORITY APPLN. INFO.: <--
US 2000-885270
2000 0905

AB Specific compds. useful in curable compns. as well as thermosets that are reworkable through thermal decomposition, include a cyclic hydrocarbon moiety including an oxirane or thirane group and an aromatic ether moiety including an oxirane or thirane group. The cyclic hydrocarbon moiety and the aromatic ether moiety are joined to each other through an oxycarbonyl-containing linkage or a thiocarbonyl-containing linkage, preferably a secondary or tertiary linkage. Compns. incorporating such compds. are capable of curing

by exposure to a specific temperature, and are decomposable at a temperature in excess of the curing temperature, thus providing a composition which is reworkable.

IT 604810-53-9P

RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(reworkable thermosetting resin compns. and compds. useful therein)

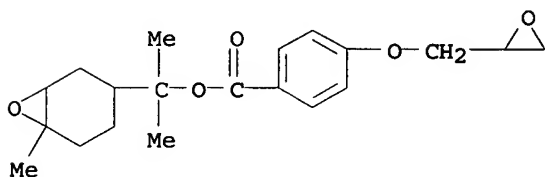
RN 604810-53-9 HCAPLUS

CN Benzoic acid, 4-(oxiranylmethoxy)-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with hexahydromethyl-1,3-isobenzofurandione (9CI) (CA INDEX NAME)

CM 1

CRN 604810-52-8

CMF C20 H26 O5

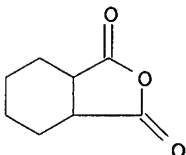


CM 2

CRN 25550-51-0

CMF C9 H12 O3

CCI IDS



D1-Me

IC ICM C08K003-10

ICS C08L063-02

INCL 523457000; 523458000; 523466000; 528094000; 528099000; 528103000; 528378000; 528379000; 528380000; 549090000

CC 37-3 (Plastics Manufacture and Processing)

Section cross-reference(s): 38

IT 604810-53-9P

RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(reworkable thermosetting resin compns. and compds. useful therein)

REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 13 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:754897 HCAPLUS

DOCUMENT NUMBER: 139:252537

TITLE: Positive resist composition
 INVENTOR(S): Fujimori, Toru
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
 SOURCE: Eur. Pat. Appl., 89 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1347335	A1	20030924	EP 2003-6122	2003 0318

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 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,
 MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ,
 EE, HU, SK

JP 2003270791	A2	20030925	JP 2002-74565	2002 0318
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US 2003224287	A1	20031204	US 2003-388408	2003 0317
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PRIORITY APPLN. INFO.: JP 2002-74565 A
 2002
 0318

AB A pos. photoresist composition used in fabrication of semiconductor devices comprises: (A) a compound capable of generating an acid on exposure to active light rays or a radiation; (B) a resin which is insol. or sparingly soluble in an alkali and becomes alkali-soluble by an action of an acid; and (C) an acyclic compound having at least three groups selected from a hydroxyl group and a substituted hydroxyl group.

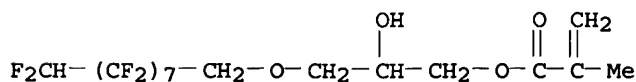
IT 431062-22-5P
 RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (pos. photoresist composition containing)

RN 431062-22-5 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-[(2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9-hexadecafluorononyl)oxy]-2-hydroxypropyl ester, polymer with 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl 2-methyl-2-propenoate, 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate and 5(or 6)-[3,3,3-trifluoro-2-[(tetrahydro-2H-pyran-2-yl)oxy]-2-(trifluoromethyl)propyl]bicyclo[2.2.1]hept-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

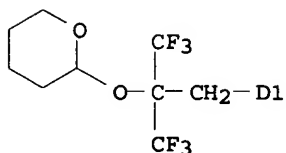
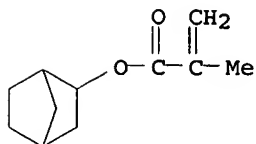
CM 1

CRN 431062-21-4
 CMF C16 H14 F16 O4



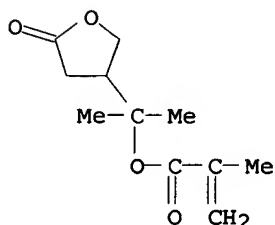
CM 2

CRN 431062-13-4
 CMF C20 H26 F6 O4
 CCI IDS



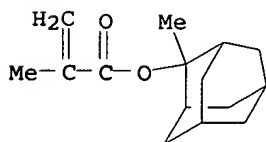
CM 3

CRN 280566-59-8
 CMF C11 H16 O4



CM 4

CRN 177080-67-0
 CMF C15 H22 O2



IC ICM G03F007-039
 ICS G03F007-004

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and
 Other Reprographic Processes)
 Section cross-reference(s): 35, 38

IT 109-92-2DP, Ethyl vinyl ether, reaction product with
 polyhydroxystyrene 24979-70-2DP, VP15000, reaction product with
 alkyl vinyl ether 159296-87-4P 200808-68-0P 250378-10-0P,
 Butyrolactone methacrylate-2-ethyl-2-adamantyl methacrylate
 copolymer 262617-13-0P 288303-55-9P 325143-38-2P
 364736-22-1P 391232-36-3P 398140-43-7P 398140-45-9P

398140-47-1P 398140-50-6P 398140-52-8P 398140-55-1P
398140-57-3P 398140-59-5P 398140-64-2P 398140-69-7P
398140-73-3P 398140-77-7P 398140-78-8P 398140-79-9P
398140-81-3P 398140-88-0P, tert-Butyl norbornenecarboxylate-
maleic anhydride-2-methyl-2-adamantyl acrylate-norbornene lactone
acrylate copolymer 398140-89-1P 398140-94-8P 398141-00-9P
398141-11-2P 398141-13-4P 398141-14-5P 405509-18-4P
430436-66-1P 430436-67-2P 430436-68-3P 430436-70-7P
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431062-14-5P 431062-16-7P 431062-17-8P 431062-18-9P
431062-20-3P 431062-22-5P 462109-80-4P 471257-28-0P
503003-64-3P 597553-03-2P 597553-04-3P

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical
or engineered material use); PREP (Preparation); USES (Uses)
(pos. photoresist composition containing)

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L22 ANSWER 14 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:735196 HCAPLUS

DOCUMENT NUMBER: 139:267983

TITLE: Positive-working photoresist composition
containing polymer with fluoro-aliphatic group

INVENTOR(S): Fujimori, Toru

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 88 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003262952	A2	20030919	JP 2002-65444	2002 0311

PRIORITY APPLN. INFO.: <--
JP 2002-65444

2002
0311

AB The composition contains (A) a compound generating an acid by irradiation of
actinic ray, (B) a resin which decomp. by the action of an acid
and whose solubility in alkaline developer increases, and (C) a polymer
with fluoro-aliphatic group formed from a monomer
CH₂:CR₁COX(CH₂)_m(CF₂CF₂)_nF (R₁ = H, Me; X = O, S, NR₂; m = 1-6; n
= 2-4; R₂ = H, C1-4 alkyl). Developing defect is prevented and
the composition is useful for manufacture of integrated circuits,
semiconductor device, and wiring substrates.

IT 431062-22-5P

RL: IMF (Industrial manufacture); TEM (Technical or engineered
material use); PREP (Preparation); USES (Uses)

(pos. photoresist composition containing polymer with fluoro-aliphatic
group)

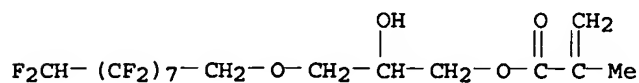
RN 431062-22-5 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-[(2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9-hexadecafluorononyl)oxy]-2-hydroxypropyl ester, polymer with 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl 2-methyl-2-propenoate, 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate and 5(or 6)-[3,3,3-trifluoro-2-[(tetrahydro-2H-pyran-2-yl)oxy]-2-(trifluoromethyl)propyl]bicyclo[2.2.1]hept-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 431062-21-4

CMF C16 H14 F16 O4

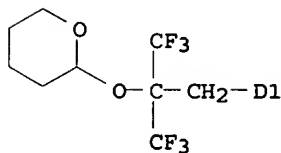
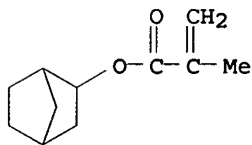


CM 2

CRN 431062-13-4

CMF C20 H26 F6 O4

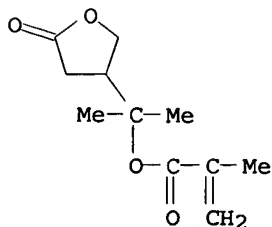
CCI IDS



CM 3

CRN 280566-59-8

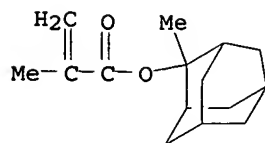
CMF C11 H16 O4



CM 4

CRN 177080-67-0

CMF C15 H22 O2



IC ICM G03F007-004
 ICS C08F020-22; C08F020-38; C08F020-54; C08F020-68; C08F020-70;
 G03F007-033; G03F007-039; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and
 Other Reprographic Processes)
 Section cross-reference(s): 38

IT 250378-10-0P, Butyrolactone methacrylate-2-ethyl-2-adamantyl
 methacrylate copolymer 262617-13-0P 328061-11-6P
 350992-58-4P 351197-82-5P 359635-35-1P 364736-22-1P
 367283-78-1P 391232-36-3P 398140-38-0P 398140-43-7P
 398140-45-9P 398140-57-3P 398140-64-2P 398140-69-7P
 398140-79-9P 398140-86-8P 398140-87-9P 398140-88-0P
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 RL: IMF (Industrial manufacture); TEM (Technical or engineered
 material use); PREP (Preparation); USES (Uses)
 (pos. photoresist composition containing polymer with fluoro-aliphatic
 group)

L22 ANSWER 15 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2003:470377 HCAPLUS
 DOCUMENT NUMBER: 139:44224
 TITLE: Positive-working resist composition containing
 specific fluorine group-containing resin
 INVENTOR(S): Kanna, Shinichi; Mizutani, Kazuyoshi; Kodama,
 Kunihiro; Sasaki, Tomoya
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
 SOURCE: Eur. Pat. Appl., 80 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1319981	A2	20030618	EP 2002-27667	2002 1212
EP 1319981	A3	20030723		

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,
MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ,
EE, SK

US 2003194650 A1 20031016 US 2002-317110

2002
1212

JP 2003241386 A2 20030827 JP 2002-362629

2002
1213

PRIORITY APPLN. INFO.:

JP 2001-380104 A

2001
1213

JP 2001-380105 A

2001
1213

AB The invention relates to a pos. resist composition comprising (A) a fluorine group-containing resin, which has a structure substituted with a fluorine atom in the main chain and/or side chain of polymer skeleton and a group that is decomposed by the action of an acid to increase solubility in an alkali developer and (B) an acid generator capable of generating an acid upon irradiation of an actinic ray or radiation, and the acid generator of (B) is a compound selected from a sulfonium salt containing no aromatic ring and a compound having a phenacylsulfonium salt structure. The composition is capable of forming a highly precise pattern using a vacuum UV ray of ≤ 160 nm such as F2 excimer laser beam as a light source for exposure.

IT 431062-22-5P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(fluorine group-containing resin)

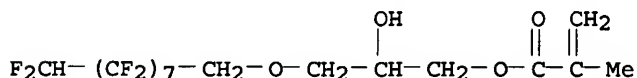
RN 431062-22-5 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-[(2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9-hexadecafluorononyl)oxy]-2-hydroxypropyl ester, polymer with 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl 2-methyl-2-propenoate, 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate and 5(or 6)-[3,3,3-trifluoro-2-[(tetrahydro-2H-pyran-2-yl)oxy]-2-(trifluoromethyl)propyl]bicyclo[2.2.1]hept-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 431062-21-4

CMF C16 H14 F16 O4

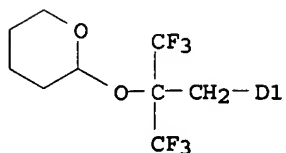
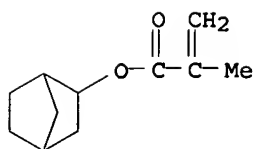


CM 2

CRN 431062-13-4

CMF C20 H26 F6 O4

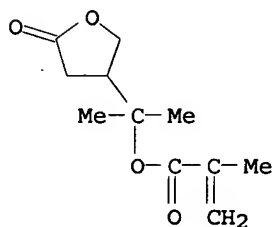
CCI IDS



CM 3

CRN 280566-59-8

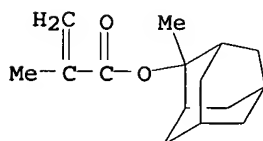
CMF C11 H16 O4



CM 4

CRN 177080-67-0

CMF C15 H22 O2



IC ICM G03F007-004

ICS G03F007-039

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 35

IT	262617-13-0P	430436-66-1P	430436-68-3P	430436-72-9P
	430436-74-1P	430436-76-3P	430436-78-5P	430436-79-6P
	430436-81-0P	430436-84-3P	430436-85-4P	430436-87-6P
	430436-90-1P	430436-92-3P	430436-94-5P	430436-99-0P
	430437-03-9P	430437-07-3P	430437-12-0P	430437-13-1P
	430437-14-2P	430437-15-3P	430437-17-5P	430437-18-6P
	430437-19-7P	430437-21-1P	430437-22-2P	430437-29-9P
	430437-33-5P	430437-35-7P	430437-40-4P	431062-12-3P
	431062-17-8P	431062-22-5P	462109-80-4P	485390-42-9P
	540729-50-8P	540729-51-9P	540729-52-0P	540729-54-2P

540729-55-3P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(fluorine group-containing resin)

L22 ANSWER 16 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:371833 HCAPLUS

DOCUMENT NUMBER: 138:376421

TITLE: Chemically amplified positive resists forming defect-free patterns by deep-UV lithography using F2 excimer lasers

INVENTOR(S): Fujimori, Toru; Kanna, Shinichi

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 55 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003140345	A2	20030514	JP 2001-338103	2001 1102

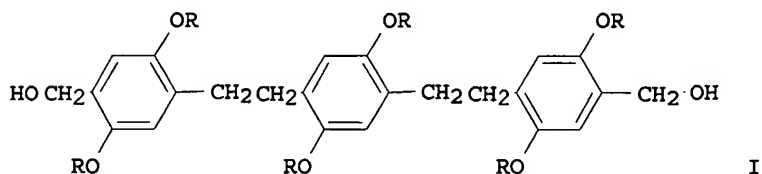
PRIORITY APPLN. INFO.:

<--
JP 2001-338103

2001
1102

<--

GI



AB The resists comprise acid-labile F-containing resins, radiation-sensitive acid generators, and F-containing compds.

IT 431062-22-5

RL: TEM (Technical or engineered material use); USES (Uses)
(chemical amplified pos. resists containing F-substituted acid-labile polymers and F compds. for deep-UV lithog.)

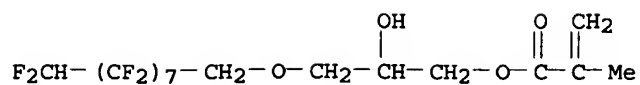
RN 431062-22-5 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-[(2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9-hexadecafluorononyl)oxy]-2-hydroxypropyl ester, polymer with 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl 2-methyl-2-propenoate, 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate and 5(or 6)-[3,3,3-trifluoro-2-[(tetrahydro-2H-pyran-2-yl)oxy]-2-(trifluoromethyl)propyl]bicyclo[2.2.1]hept-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

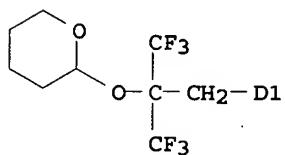
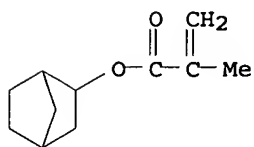
CRN 431062-21-4

CMF C16 H14 F16 O4



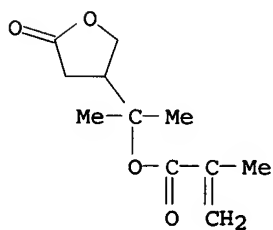
CM 2

CRN 431062-13-4
 CMF C20 H26 F6 O4
 CCI IDS



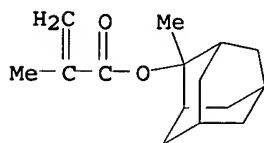
CM 3

CRN 280566-59-8
 CMF C11 H16 O4



CM 4

CRN 177080-67-0
 CMF C15 H22 O2



IC ICM G03F007-039
 ICS G03F007-004; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
 Section cross-reference(s): 38
 IT 430436-67-2 430436-84-3 430436-85-4 430436-89-8
 430436-90-1 431062-14-5 431062-16-7 431062-18-9
 431062-20-3 431062-22-5
 RL: TEM (Technical or engineered material use); USES (Uses)
 (chemical amplified pos. resists containing F-substituted acid-labile polymers and F compds. for deep-UV lithog.)

L22 ANSWER 17 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2003:369197 HCAPLUS
 DOCUMENT NUMBER: 138:393073
 TITLE: Positive-working photoresist composition
 containing fluoro-substituted nitrogen
 compound
 INVENTOR(S): Fujimori, Toru; Kanna, Shinichi
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 53 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003140349	A2	20030514	JP 2001-339439	2001 1105

PRIORITY APPLN. INFO.: JP 2001-339439

2001
1105

AB The composition contains (A) a polymer with F-substituted main chain or side chain and becomes soluble in alkaline developer by the decomposition caused by an acid, (B) a compound generating acid by actinic ray or radiation, and (C) a nitrogen compound containing ≥ 1 F atom. The composition gives clear pattern without development defect.

IT 431062-22-5P
 RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (pos. photoresist containing F-containing alkali-soluble polymer, acid generator, and F-containing nitrogen compound)

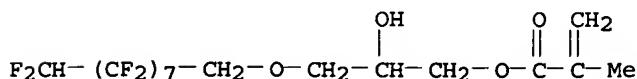
RN 431062-22-5 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-[(2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9-hexadecafluorononyl)oxy]-2-hydroxypropyl ester, polymer with 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl 2-methyl-2-propenoate, 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate and 5(or 6)-[3,3,3-trifluoro-2-[(tetrahydro-2H-pyran-2-yl)oxy]-2-(trifluoromethyl)propyl]bicyclo[2.2.1]hept-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

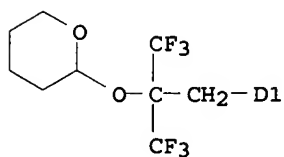
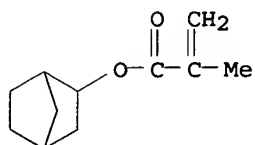
CRN 431062-21-4

CMF C16 H14 F16 O4



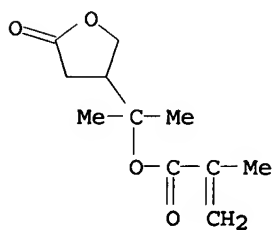
CM 2

CRN 431062-13-4
 CMF C20 H26 F6 O4
 CCI IDS



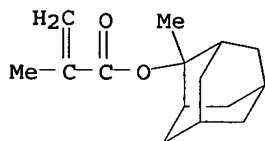
CM 3

CRN 280566-59-8
 CMF C11 H16 O4



CM 4

CRN 177080-67-0
 CMF C15 H22 O2



IC ICM G03F007-039
 ICS C08F012-22; C08F014-26; C08F014-28; C08F016-26; C08F016-38;
 C08F020-22; C08F020-28; C08F020-44; C08F032-04; G03F007-004;
 H01L021-027
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and
 Other Reprographic Processes)
 Section cross-reference(s): 38
 IT 143643-34-9P 262617-13-0P 370866-13-0P 370866-15-2P

397302-29-3P 430436-67-2P 430436-68-3P 430436-70-7P
 430436-72-9P 430436-74-1P 430436-76-3P 430436-78-5P
 430436-79-6P 430436-81-0P 430436-82-1P 430436-84-3P
 430436-85-4P 430436-86-5P 430436-87-6P 430436-89-8P
 430436-90-1P 430436-92-3P 430436-94-5P 430436-98-9P
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 430437-05-1P 430437-09-5P 430437-11-9P 430437-12-0P
 430437-13-1P 430437-17-5P 430437-18-6P 430437-19-7P
 430437-21-1P 430437-22-2P 430437-24-4P 430437-27-7P
 430437-29-9P 430437-33-5P 430437-36-8P 430437-37-9P
 430437-39-1P 430437-40-4P 431062-12-3P 431062-14-5P
 431062-16-7P 431062-17-8P 431062-18-9P 431062-20-3P
 431062-22-5P 487048-93-1P 524952-65-6P 524952-66-7P
 524952-68-9P 524952-69-0P 524952-70-3P 524952-71-4P
 524952-72-5P 524952-73-6P 524952-74-7P

RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(pos. photoresist containing F-containing alkali-soluble polymer, acid generator, and F-containing nitrogen compound)

L22 ANSWER 18 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:152372 HCAPLUS

DOCUMENT NUMBER: 138:212786

TITLE: Vacuum UV-sensitive resin composition containing ionic compound reactive towards acid

INVENTOR(S): Kanna, Shinichi; Mizutani, Kazuyoshi

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 66 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003057826	A2	20030228	JP 2001-250535	2001 0821

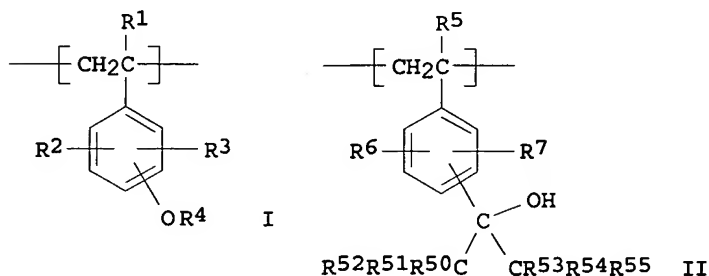
PRIORITY APPLN. INFO.:

<-- JP 2001-250535

2001 0821

<--

GI



AB The title composition contains a resin which increases the solubility

towards an alkali developer by an acid and has repeating unit I, II, and [CH(R17a)-C(R17)(COOR18)] (R1,5,R17, R17a = H, halo, cyano, alkyl; R2,3,6,7 = H, halo, cyano, hydroxyl, etc.; R50-55 = H, F, alkyl; R4 = -C(R11)(R12)(R13), -C(R14)(R15)(-O-R16); R11-13 = alkyl, cycloalkyl, alkenyl, etc.; R14-15 = H, alkyl; R16 = alkyl, cycloalkyl, aralkyl, aryl; R18 = -C(R18d)(R18e)(R18f), -C(R18d)(R18e)(OR18g); R18d-g = H, alkyl, aralkyl, aryl), an actinic ray- or radiation-sensitive acid generator, ionic compound B+A2- (A2= anionic part; B = cationic part), a solvent, and a surfactant, wherein the acid (A1H) generated by an acid generator and the ionic compound follow the reaction equation: A1H + B+A2--> B+A2- + A2H. The composition shows the good light transmittance towards ≤ 160 nm light and the decreased dependence on the exposure time and provides the resist of the good line edge roughness.

IT 500212-82-8P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(resin; Vacuum UV-sensitive resin composition containing ionic compound reactive towards acid)

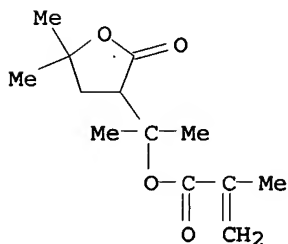
RN 500212-82-8 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(tetrahydro-5,5-dimethyl-2-oxo-3-furanyl)ethyl ester, polymer with α -(difluoromethyl)-4-ethenyl- α -(trifluoromethyl)benzenemethanol and 1-[1-(4-ethenylphenoxy)-1-methylethyl]tricyclo[3.3.1.1^{3,7}]decane (9CI) (CA INDEX NAME)

CM 1

CRN 500212-81-7

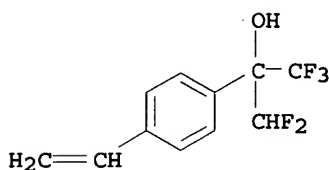
CMF C13 H20 O4



CM 2

CRN 485390-53-2

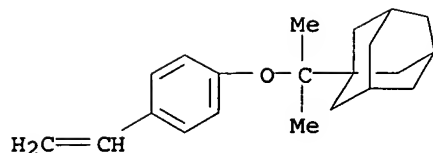
CMF C11 H9 F5 O



CM 3

CRN 430437-25-5

CMF C21 H28 O



IC ICM G03F007-039

ICS C08F212-14; G03F007-004; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 35

IT 485390-41-8P 485390-42-9P 485390-43-0P 485390-45-2P
 485390-46-3P 485390-47-4P 485390-49-6P 485390-52-1P
 485390-55-4P 485390-56-5P 485390-57-6P 485390-58-7P
 485390-60-1P 485390-62-3P 485390-63-4P 485390-64-5P
 485390-65-6P 485390-66-7P 485390-67-8P 485390-69-0P
 485390-70-3P 500212-79-3P 500212-80-6P 500212-82-8P
 500212-84-0P 500212-86-2P 500212-87-3P 500212-88-4P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(resin; Vacuum UV-sensitive resin composition containing ionic compound reactive towards acid)

L22 ANSWER 19 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:56212 HCAPLUS

DOCUMENT NUMBER: 138:115060

TITLE: Cycloalkenyl epoxy compounds, their polymers, positive photoresists containing them with high resolution and good adhesion to substrates, and photolithography using them

INVENTOR(S): Hasegawa, Koji; Kaneo, Takeshi; Watanabe, Takeshi

PATENT ASSIGNEE(S): Shin-Etsu Chemical Industry Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 37 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

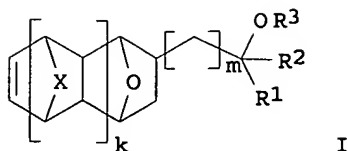
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003020313	A2	20030124	JP 2001-207289	2001 0709
US 2003050398	A1	20030313	US 2002-189706	2002 0703
US 2005142491	A1	20050630	US 2005-57008	2005 0211
PRIORITY APPLN. INFO.:			JP 2001-207289	A 2001 0709
			US 2002-189706	A3 2002 0703

OTHER SOURCE(S): MARPAT 138:115060
GI

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AB The invention relates to epoxy compds. I (R₁, R₂ = H, C₁-10-alkyl, etc.; R₃ = C₁-10-alkyl, C₁-15-acyl, C₁-15-alkoxycarbonyl, etc.; X = CH₂, O, S; k = 0, 1; m = 0-5). The photoresists are sensitive to ArF excimer laser beams.

IT 488720-38-3P 488720-40-7P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(cycloalkenyl epoxide polymers for ArF laser-sensitive high-resolution pos. photoresists with good adhesion to substrates)

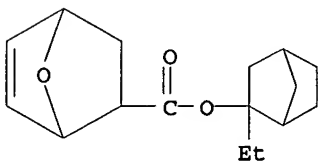
RN 488720-38-3 HCAPLUS

CN 7-Oxabicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 2-ethylbicyclo[2.2.1]hept-2-yl ester, polymer with (α,α-dimethyl-7-oxabicyclo[2.2.1]hept-5-en-2-yl)methyl acetate and 2,5-furandione (9CI) (CA INDEX NAME)

CM 1

CRN 488720-34-9

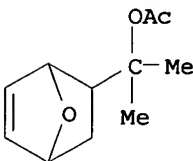
CMF C16 H22 O3



CM 2

CRN 488720-33-8

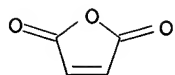
CMF C11 H16 O3



CM 3

CRN 108-31-6

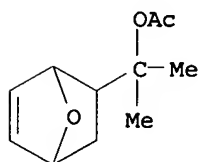
CMF C4 H2 O3



RN 488720-40-7 HCAPLUS
 CN 2-Propenoic acid, 2-ethyltricyclo[3.3.1.1^{3,7}]dec-2-yl ester,
 polymer with (α,α-dimethyl-7-oxabicyclo[2.2.1]hept-5-
 en-2-yl)methyl acetate and 2,5-furandione (9CI) (CA INDEX NAME)

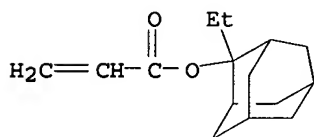
CM 1

CRN 488720-33-8
 CMF C11 H16 O3



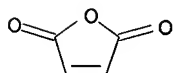
CM 2

CRN 303186-14-3
 CMF C15 H22 O2



CM 3

CRN 108-31-6
 CMF C4 H2 O3



IC ICM C08F034-00
 ICS C08G061-12; G03F007-039
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and
 Other Reprographic Processes)
 IT 488720-35-0P 488720-36-1P 488720-37-2P 488720-38-3P
 488720-39-4P 488720-40-7P 488720-41-8P 488720-43-0P
 RL: IMF (Industrial manufacture); TEM (Technical or engineered
 material use); PREP (Preparation); USES (Uses)
 (cycloalkenyl epoxide polymers for ArF laser-sensitive
 high-resolution pos. photoresists with good adhesion to
 substrates)

L22 ANSWER 20 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2003:35187 HCAPLUS
 DOCUMENT NUMBER: 138:98199

TITLE: Positive-working vacuum UV-sensitive photoresist material composition containing specific resin

INVENTOR(S): Kanna, Shinichi; Mizutani, Kazuyoshi

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 39 pp.
CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

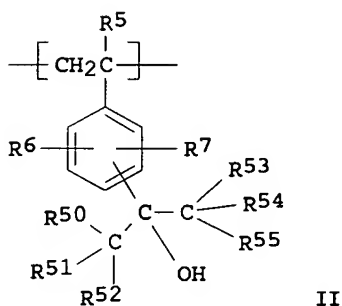
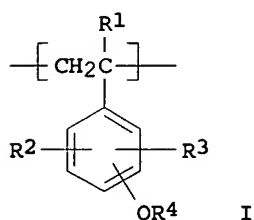
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2003015298	A2	20030115	JP 2001-202241	2001 0703
			--<	
PRIORITY APPLN. INFO.:			JP 2001-202241	2001 0703

GI



AB The title composition contains a resin increasing solubility toward an alkali solution by an acid, a photoacid generator, and a solvent, wherein the resin contains repeating unit I, II, and [-CH(R17a)-C(R17)(COOR18)-] (R1,5,17a,17 = H, halo, cyano, alkyl; R2,3,6,7 = H, halo, cyano, hydroxyl, etc.; R50-55 = H, F, alkyl; R4 = -C(R11)(R12)(R13), -C(R14)(R15)(-O-R16); R18 = -C(R18d)(R18e)(R18f), -C(R18d)(R18e)-O-(R18g); R11-13 = alkyl, cycloalkyl, alkenyl, aralkyl, aryl; R14-15 = H, alkyl; R16 = alkyl, cycloalkyl, aralkyl, aryl). The composition provides the good transparency towards vacuum UV and provides the good solubility contrast towards developers.

IT 485390-54-3P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(resin; pos.-working vacuum UV-sensitive photoresist material composition containing specific resin)

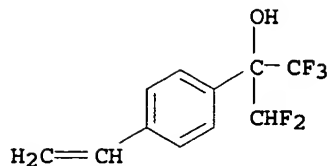
RN 485390-54-3 HCAPLUS

2-Propenoic acid, 2-methyl-, 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl ester, polymer with α -(difluoromethyl)-4-ethenyl- α -(trifluoromethyl)benzenemethanol and 1-[1-(4-ethenylphenoxy)-1-methylethyl]tricyclo[3.3.1.1^{3,7}]decane (9CI) (CA INDEX NAME)

CM 1

CRN 485390-53-2

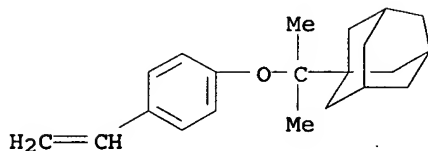
CMF C11 H9 F5 O



CM 2

CRN 430437-25-5

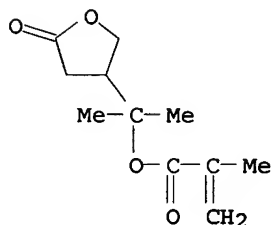
CMF C21 H28 O



CM 3

CRN 280566-59-8

CMF C11 H16 O4



IC ICM G03F007-039

ICS C08F212-14; C08F220-18; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 35

IT 485390-41-8P 485390-42-9P 485390-43-0P 485390-44-1P
 485390-45-2P 485390-46-3P 485390-47-4P 485390-49-6P
 485390-51-0P 485390-52-1P 485390-54-3P 485390-55-4P
 485390-56-5P 485390-57-6P 485390-58-7P 485390-60-1P
 485390-62-3P 485390-63-4P 485390-64-5P 485390-65-6P
 485390-66-7P 485390-67-8P 485390-68-9P 485390-69-0P
 485390-70-3P 485390-72-5P 485390-73-6P 485390-76-9P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(resin; pos.-working vacuum UV-sensitive photoresist material composition containing specific resin)

L22 ANSWER 21 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2002:976089 HCAPLUS
 DOCUMENT NUMBER: 138:47317
 TITLE: Positive radiation-sensitive resist compositions having high sensitivity and high resolution and their sub-quarter-micron lithography
 INVENTOR(S): Nio, Hiroyuki; Tamura, Kazutaka; Senoo, Masahide
 PATENT ASSIGNEE(S): Toray Industries, Inc., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 14 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002372785	A2	20021226	JP 2002-103440	2002 0405

PRIORITY APPLN. INFO.: JP 2001-113820 A
 2001 0412

AB The resist compns., useful for patterning with electron beam, contain (a) as acid-labile alkali-developable binders, polymers containing structure units bearing lactone residues and structure units bearing aromatic rings and (b) radiation-sensitive acid generators. Thus, a resist composition comprising 3 g α -methacryloyloxypantolactone-2-phenylpropyl methacrylate copolymer (reaction ratio 5.9:4) with Mw 33,000, 300 mg triphenylsulfonium triflate, and Me Cellosolve acetate was spin-coated on a HMDS-treated Si wafer, heated at 100° for 2 min to give a 0.5- μ m thick layer, subjected to patternwise exposure to electron beam, and developed with 2.38% Me₄NOH to give 0.20- μ m width patterns (exposure 2.2 μ C/cm²).

IT 478866-28-3P
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (pos. electron-beam resist compns. and their sub-quarter-micron lithog.)

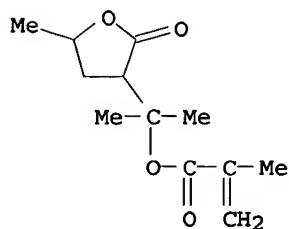
RN 478866-28-3 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-phenylethyl ester, polymer with 1-methyl-1-(tetrahydro-5-methyl-2-oxo-3-furanyl)ethyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 478866-27-2

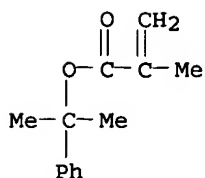
CMF C12 H18 O4



CM 2

CRN 54554-17-5

CMF C13 H16 O2



IC ICM G03F007-039

ICS C08F020-10; C08F020-42; C08F212-04; C08F214-00; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT 478866-24-9P 478866-25-0P, α -Methacryloyloxy- γ -butyrolactone-p-tetrahydropyranyloxystyrene copolymer

478866-26-1P 478866-28-3P 478866-29-4P 478866-30-7P

478866-31-8P 478866-32-9P, 1,1-Diphenylethyl methacrylate- β -methacryloyloxymevalolactone copolymer478866-33-0P, 1,1-Diphenylethyl acrylate- α -methacryloyloxy- γ -butyrolactone copolymer 478866-34-1P, 1,1-Diphenylethylmethacrylate- α -methacryloyloxy- γ -butyrolactone copolymer

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(pos. electron-beam resist compns. and their sub-quarter-micron lithog.)

L22 ANSWER 22 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2002:769998 HCAPLUS

DOCUMENT NUMBER: 137:302221

TITLE: Deep-UV positive-working photoresist composition showing improved contact hole resolution and sidelobe suppression

INVENTOR(S): Sato, Kenichiro

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 77 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002296782	A2	20021009	JP 2001-101521	2001 0330

PRIORITY APPLN. INFO.: <-- JP 2001-101521

2001
0330

AB The title pos.-working photoresist composition comprises (A) an acid-decomposable resin comprised of an aliphatic cyclic hydrocarbon structural repeating unit and a crosslinking structural repeating unit -OC(R1)(R2)O- [R1, R2 = H, C1-4-alkyl], and (B) a photoacid generator. The photoresist composition is especially suitable for the photolithog. with the 193 nm ArF excimer laser.

IT 469880-24-8P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(deep-UV pos.-working photoresist composition showing improved contact hole resolution and side-lobe suppression)

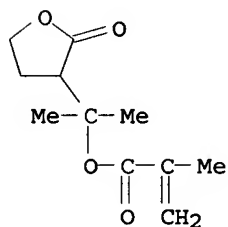
RN 469880-24-8 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-6-yl ester, polymer with ethylidenebis(oxy-2,1-ethanediyl) di-2-propenoate, 1-methyl-1-(tetrahydro-2-oxo-3-furanyl)ethyl 2-methyl-2-propenoate and 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate (9CI)
(CA INDEX NAME)

CM 1

CRN 469880-23-7

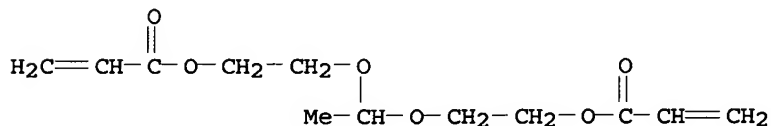
CMF C11 H16 O4



CM 2

CRN 403498-97-5

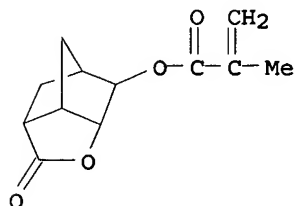
CMF C12 H18 O6



CM 3

CRN 254900-07-7

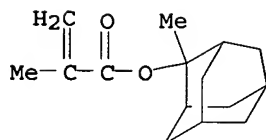
CMF C12 H14 O4



CM 4

CRN 177080-67-0

CMF C15 H22 O2



IC ICM G03F007-039
ICS C08K005-00; C08L101-12; H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 38, 76
IT 469880-22-6P 469880-24-8P 469880-26-0P 469880-27-1P
469880-29-3P 469880-31-7P 469880-32-8P 469880-34-0P
469880-35-1P 469880-36-2P 469880-38-4P 469880-40-8P
469880-41-9P 469880-42-0P 469880-43-1P 469880-45-3P
469880-47-5P 469880-49-7P 469880-50-0P 469880-51-1P
469880-53-3P
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(deep-UV pos.-working photoresist composition showing improved contact hole resolution and side-lobe suppression)

L22 ANSWER 23 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2002:716915 HCAPLUS

DOCUMENT NUMBER: 137:270511

TITLE: Polymers, resist materials, and pattern formation method

INVENTOR(S): Nishi, Tsunehiro; Hasegawa, Koji; Nakashima, Mutsuo

PATENT ASSIGNEE(S): Shin-Etsu Chemical Co., Ltd., Japan

SOURCE: U.S. Pat. Appl. Publ., 37 pp.

CODEN: USXXCO

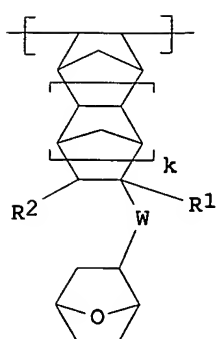
DOCUMENT TYPE: Patent

LANGUAGE: English

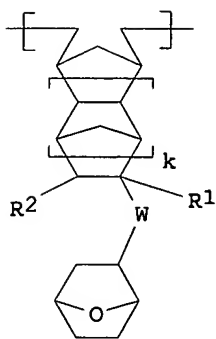
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002132182	A1	20020919	US 2002-50478	2002 0116
US 6677101	B2	20040113	<--	
TW 550275	B	20030901	TW 2002-91100626	2002 0116
JP 2002303985	A2	20021018	JP 2002-8244	2002 0117
PRIORITY APPLN. INFO.:			JP 2001-8613	A 2001 0117
GI			<--	



I



II

AB The present invention provides (1) a polymer which has excellent reactivity, rigidity and adhesion to the substrate, and undergoes a low degree of swelling during development, (2) a resist material which uses this polymer as the base resin and hence exhibits much higher resolving power and etching resistance than conventional resist materials, and (3) a pattern formation method using this resist material. Specifically, the present invention provides a novel polymer containing repeating units represented by I, II (R¹ = H, Me, CH₂CO₂R₃; R₂ = H, Me, CO₂R₃; R₃ = C₁-15 alkyl; W = C₂-20 divalent hydrocarbon radical, which may have ≥ 1 ester linkage in its structure and may further be substituted by one or more other atomic group containing a heteroatom; k = 0,1) and having a weight-average mol. weight of 1,000-500,000, a resist material using the polymer as a base resin, and a pattern formation method using the resist material.

IT 461671-55-6P

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (polymers, photoresist materials, and pattern formation method)

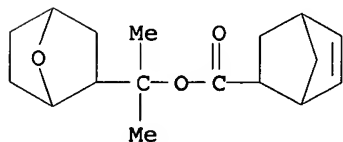
RN 461671-55-6 HCAPLUS

CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 2-ethylbicyclo[2.2.1]hept-2-yl ester, polymer with 2,5-furandione and 1-methyl-1-(7-oxabicyclo[2.2.1]hept-2-yl)ethyl bicyclo[2.2.1]hept-5-ene-2-carboxylate (9CI) (CA INDEX NAME)

CM 1

CRN 461671-54-5

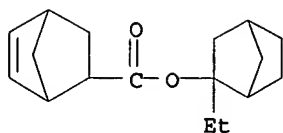
CMF C17 H24 O3



CM 2

CRN 330596-01-5

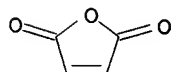
CMF C17 H24 O2



CM 3

CRN 108-31-6

CMF C4 H2 O3



IC ICM G03F007-039

ICS G03F007-38; G03F007-40

INCL 430270100

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 35, 38

IT 461671-53-4P 461671-55-6P 461671-57-8P 461671-59-0P

461671-60-3P 461671-61-4P 461671-62-5P 461671-63-6P

461671-64-7P 461671-65-8P 461671-66-9P 461671-68-1P

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(polymers, photoresist materials, and pattern formation method)

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L22 ANSWER 24 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2002:575607 HCAPLUS

DOCUMENT NUMBER: 137:132115

TITLE: Polymer, resist composition and patterning process

INVENTOR(S): Nishi, Tsunehiro; Nakashima, Mutsuo; Kobayashi, Tomohiro

PATENT ASSIGNEE(S): Shin-Etsu Chemical Co., Ltd., Japan

SOURCE: U.S. Pat. Appl. Publ., 35 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002102493	A1	20020801	US 2001-221	2001 1204
US 6670094	B2	20031230	<--	
JP 2002234913	A2	20020823	JP 2001-363803	2001 1129
TW 527523	B	20030411	TW 2001-90129860	2001 1203

PRIORITY APPLN. INFO.:

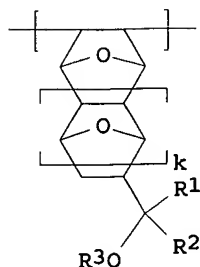
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JP 2000-368672

A

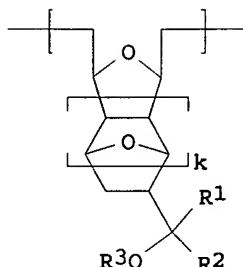
2000
1204

<--

GI



I



II

AB The present invention relates to a polymer comprising recurring units of I, II (R1,2 = H, C1-15 alkyl, R1,2 taken together, may form a ring; R3 = H, C1-15 alkyl, acyl or alkylsulfonyl or C2-15 alkoxy carbonyl or alkoxyalkyl which may have halogen substituents; not all R1-3 are hydrogen; k = 0 or 1) and having a Mw of 1,000-500,000.. The present invention relates to a photoresist composition comprising the polymer as a base resin which is sensitive to high-energy radiation, has excellent sensitivity, resolution, etching resistance, and minimized swell and lends itself to micropatterning with electron beams or deep-UV.

IT 444045-74-3P

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (polymer photoresist composition for patterning process)

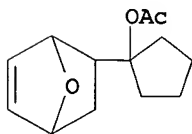
RN 444045-74-3 HCAPLUS

CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 2-ethylbicyclo[2.2.1]hept-2-yl ester, polymer with 2,5-furandione and 1-(7-oxabicyclo[2.2.1]hept-5-en-2-yl)cyclopentyl acetate (9CI) (CA INDEX NAME)

CM 1

CRN 444045-73-2

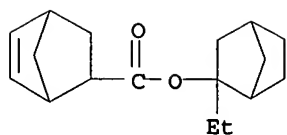
CMF C13 H18 O3



CM 2

CRN 330596-01-5

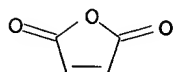
CMF C17 H24 O2



CM 3

CRN 108-31-6

CMF C4 H2 O3



IC ICM G03F007-038

ICS G03F007-38; G03F007-40; G03F007-30

INCL 430270100

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 35, 38

IT 444045-74-3P 444045-76-5P 444045-78-7P 444105-77-5P

444105-79-7P 444105-81-1P 444105-83-3P 444105-85-5P

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polymer photoresist composition for patterning process)

L22 ANSWER 25 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2002:407174 HCAPLUS

DOCUMENT NUMBER: 136:409030

TITLE: Radiation-sensitive chemically amplified
positive resists and lithography using the
same

INVENTOR(S): Nio, Hiroyuki; Tamura, Kazutaka; Senoo,
Masahide

PATENT ASSIGNEE(S): Toray Industries, Inc., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002156760	A2	20020531	JP 2000-352488	2000 1120

PRIORITY APPLN. INFO.: JP 2000-352488

2000
1120

AB The resists, showing good sensitivity and high pattern resolution, contain (a) compds. or acrylate polymers (Markush given) having carboxyls which are protected with ≥ 3 -aromatic-ring-bearing acid-leaving protective groups and (b) radiation-sensitive acid generators.

IT 431943-52-1

RL: PEP (Physical, engineering or chemical process); PYP (Physical

process); TEM (Technical or engineered material use); PROC
(Process); USES (Uses)
(chemical amplified pos. resists containing polymers bearing
acid-leaving bulky protective groups for electron beam lithog.)

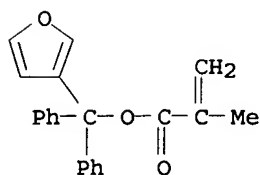
RN 431943-52-1 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-furanyldiphenylmethyl ester,
homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 431943-51-0

CMF C21 H18 O3



IC ICM G03F007-039

ICS C08K005-00; C08L033-04; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and
Other Reprographic Processes)

Section cross-reference(s): 38, 76

IT 383908-19-8 383908-20-1 383908-22-3 431943-52-1

RL: PEP (Physical, engineering or chemical process); PYP (Physical
process); TEM (Technical or engineered material use); PROC
(Process); USES (Uses)

(chemical amplified pos. resists containing polymers bearing
acid-leaving bulky protective groups for electron beam lithog.)

L22 ANSWER 26 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2002:392162 HCAPLUS

DOCUMENT NUMBER: 136:409022

TITLE: Positive resist composition

INVENTOR(S): Aoi, Toshiaki; Yasunami, Shoichiro; Mizutani,
Kazuyoshi; Kanna, Shinichi

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: U.S. Pat. Appl. Publ., 56 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002061464	A1	20020523	US 2001-961281	2001 0925
US 6852467	B2	20050208	<--	
JP 2002333715	A2	20021122	JP 2001-202298	2001 0703
TW 528931	B	20030421	TW 2001-90123599	2001 0925

PRIORITY APPLN. INFO.:

JP 2000-292537 A

2000
0926<--
JP 2000-379284 A2000
1213<--
JP 2001-62158 A2001
0306<--
JP 2001-202298 A2001
0703

<--

AB The present invention relates to a pos. resist composition comprising:
 (A) a fluorine group-containing resin having at least one fluorine atom on at least one of the main chain and the side chain of the polymer skeleton; and having a group capable of decomposing under the action of an acid to increase the solubility in an alkali developer;
 (B) a compound capable of generating an acid upon irradiation with one of actinic ray and radiation; and (C) a surfactant containing at least one of a silicon atom and a fluorine atom. The present invention provides a pos. photoresist composition suitable for use in the microlithog. process in the production of VLSI or high-capacity microchip, or in other photo-fabrication processes. The invention pos. photoresist composition is capable of forming a highly definite pattern using a vacuum UV ray of < 160 nm.

IT 431062-22-5P

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (fluorine group-containing resin for pos. resist composition)

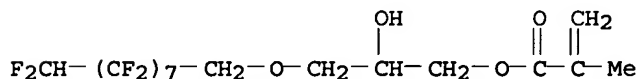
RN 431062-22-5 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-[(2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9-hexadecafluorononyl)oxy]-2-hydroxypropyl ester, polymer with 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl 2-methyl-2-propenoate, 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate and 5(or 6)-[3,3,3-trifluoro-2-[(tetrahydro-2H-pyran-2-yl)oxy]-2-(trifluoromethyl)propyl]bicyclo[2.2.1]hept-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 431062-21-4

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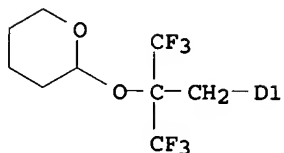
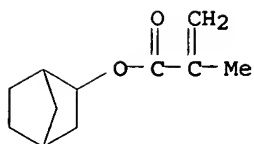


CM 2

CRN 431062-13-4

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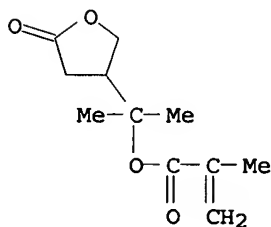
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CM 3

CRN 280566-59-8

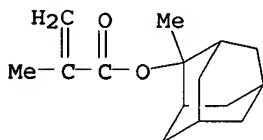
CMF C11 H16 O4



CM 4

CRN 177080-67-0

CMF C15 H22 O2



IC ICM G03F007-004

INCL 430270100

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 35, 38, 76

IT	262617-13-0P	430436-66-1P	430436-67-2P	430436-68-3P
	430436-70-7P	430436-72-9P	430436-74-1P	430436-76-3P
	430436-78-5P	430436-79-6P	430436-81-0P	430436-82-1P
	430436-84-3P	430436-85-4P	430436-86-5P	430436-87-6P
	430436-89-8P	430436-90-1P	430436-91-2P	430436-92-3P
	430436-94-5P	430436-95-6P	430436-97-8P	430436-98-9P
	430436-99-0P	430437-01-7P	430437-03-9P	430437-04-0P
	430437-05-1P	430437-07-3P	430437-09-5P	430437-11-9P
	430437-12-0P	430437-13-1P	430437-14-2P	430437-15-3P
	430437-17-5P	430437-18-6P	430437-19-7P	430437-21-1P

430437-22-2P 430437-24-4P 430437-26-6P 430437-27-7P
430437-29-9P 430437-30-2P 430437-32-4P 430437-33-5P
430437-34-6P 430437-35-7P 430437-36-8P 430437-37-9P
430437-38-0P 430437-39-1P 430437-40-4P 430437-42-6P
430437-44-8P 430437-46-0P 431062-12-3P 431062-14-5P
431062-16-7P 431062-17-8P 431062-18-9P 431062-20-3P
431062-22-5P 431062-24-7P 431062-25-8P

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (fluorine group-containing resin for pos. resist composition)

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 27 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2002:386402 HCAPLUS

DOCUMENT NUMBER: 137:125487

TITLE: Syntheses and characterizations of thermally degradable epoxy resins. III

AUTHOR(S): Li, Haiying; Wang, Lejun; Jacob, Karl; Wong, C. P.

CORPORATE SOURCE: Packaging Research Center, School of Materials Science and Engineering, School of Textile & Fiber Engineering, Georgia Institute of Technology, Atlanta, GA, 30332, USA

SOURCE: Journal of Polymer Science, Part A: Polymer Chemistry (2002), 40(11), 1796-1807
CODEN: JPACEC; ISSN: 0887-624X

PUBLISHER: John Wiley & Sons, Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB In flip-chip technol., the development of reworkable underfill materials has been one of the keys to the recovery of highly integrated and expensive board assembly designs through the replacement of defective chips. Two new diepoxides, one containing secondary ester linkages and the other containing tertiary ester linkages, that are thermally degradable below 300°, are synthesized. The secondary and tertiary ester diepoxides were synthesized in three and two steps, resp. Both compds. were characterized with NMR and Fourier-transform IR spectroscopy and formulated into underfill materials with an anhydride as the hardener and an imidazole as the catalyst. A dual-epoxy system was also formulated containing the tertiary ester diepoxide and a conventional aliphatic diepoxide, 3,4-epoxy cyclohexyl methyl-3,4-epoxycyclohexyl carboxylate (ERL-4221E), with the same hardener and catalyst. The curing kinetics of the formulas were studied with differential scanning calorimetry (DSC). Thermal properties of cured samples were characterized with DSC, thermogravimetric anal., and thermomech. anal. The dual-epoxy system showed a viscosity of 18.7 and 0.87 P at 25° and 100°, resp. The cured secondary, tertiary, and dual-epoxy formulas showed decomposition temps. around 265°, 190°, and 220°, glass transition temps. around 120°-140°, 110°-157°, and 140°-157°, and coeffs. of thermal expansion of 70, 72, and 64 ppm/°C below their glass-transition temps., resp. The shear strength of the cured dual-epoxy system decreased quickly with aging at 230°. The reworkability test showed that the removal of a chip underfilled with this material from the board was quite easy, and the residue on the board could be thoroughly removed with a mech. brush without obvious damage to the solder mask. The synthesized tertiary epoxide can be used as a reworkable underfill for flip-chip applications.

IT 298702-52-0P, Bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] isophthalate-4-methylhexahydrophthalic anhydride copolymer 298702-53-1P

, Bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] isophthalate-ERL-4221E 4-methylhexahydrophthalic anhydride copolymer

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(preparation of thermally degradable epoxy resins useful as reworkable underfill for flip-chip applications)

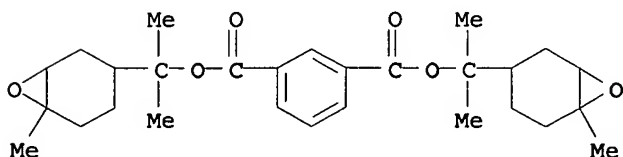
RN 298702-52-0 HCAPLUS

CN 1,3-Benzenedicarboxylic acid, bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] ester, polymer with hexahydro-5-methyl-1,3-isobenzofurandione (9CI) (CA INDEX NAME)

CM 1

CRN 298702-51-9

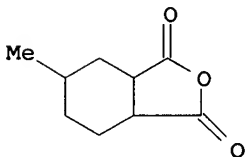
CMF C28 H38 O6



CM 2

CRN 19438-60-9

CMF C9 H12 O3



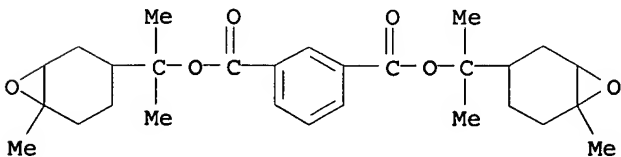
RN 298702-53-1 HCAPLUS

CN 1,3-Benzenedicarboxylic acid, bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] ester, polymer with hexahydro-5-methyl-1,3-isobenzofurandione and 7-oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate (9CI) (CA INDEX NAME)

CM 1

CRN 298702-51-9

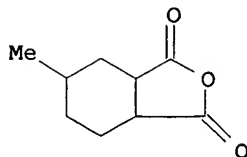
CMF C28 H38 O6



CM 2

CRN 19438-60-9

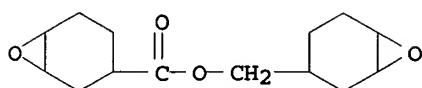
CMF C9 H12 O3



CM 3

CRN 2386-87-0

CMF C14 H20 O4



CC 35-7 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 37, 38

IT 298702-52-0P, Bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] isophthalate-4-methylhexahydrophthalic anhydride copolymer 298702-53-1P, Bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] isophthalate-ERL-4221E 4-methylhexahydrophthalic anhydride copolymer 429685-44-9P, Bis[1-(7-oxabicyclo[4.1.0]hept-3-yl)ethyl] isophthalate-4-methylhexahydrophthalic anhydride copolymer

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(preparation of thermally degradable epoxy resins useful as reworkable underfill for flip-chip applications)

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 28 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2002:376079 HCAPLUS

DOCUMENT NUMBER: 137:279868

TITLE: Syntheses and characterizations of a controlled thermally degradable epoxy resin system for electronic packaging

AUTHOR(S): Li, Haiying; Wang, Lejun; Wong, C. P.
CORPORATE SOURCE: School of Materials Science and Engineering
Packaging Research Center, Georgia Institute of Technology, Atlanta, GA, 30332, USA

SOURCE: Proceedings - International Symposium on Advanced Packaging Materials: Processes, Properties and Interfaces, Braselton, GA, United States, Mar. 11-14, 2001 (2001***), Meeting Date 2001, 268-274. Institute of Electrical and Electronics Engineers: New York, N. Y.

CODEN: 69CPT9; ISBN: 0-930815-64-5

DOCUMENT TYPE: Conference

LANGUAGE: English

AB Two diepoxides with secondary and tertiary ester linkages that are thermally degradable below 300° were synthesized in three and two steps, resp. Both compds. were characterized by NMR and FTIR spectroscopy and formulated into underfill materials with an

anhydride as hardener and imidazole as catalyst. A dual-epoxy system was also formulated contg. the tertiary ester diepoxide and a conventional aliph. diepoxide, ERL-422IE, with the same hardener and catalyst. The curing kinetics of the materials was studied using DSC and thermal properties of cured samples were characterized by DSC, TGA, and TMA. The dual-epoxy system had viscosity of 18.7 and 0.87 P at 25° and 100°, resp. The cured secondary, tertiary, and dual-epoxy materials have decompn. temp. around 265°, 190° and 220°, glass transition temp. (Tg) around 120-140°, 110-157° and 140-157°, and CTE of 70 ppm/°, 72 ppm/°, and 64ppm/°, below Tg, resp. The shear strength of the cured dual-epoxy system decreased rapidly upon ageing at 230°. The reworkability tests showed that removal from the board of a chip underfilled with this material was quite easy, and the residue on the board could be thoroughly removed up with a mech. brush without obvious damage of the solder mask. The tertiary epoxide can be used as a reworkable underfill of flip-chips.

IT ***298702-52-0P 298702-53-1P

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)

(prepn. and crosslinking and controlled thermal degrdn. of diepoxy resin system as underfill for electronic packaging)

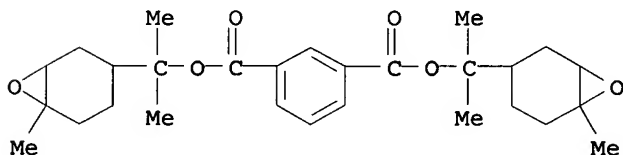
RN 298702-52-0 HCAPLUS

CN 1,3-Benzenedicarboxylic acid, bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] ester, polymer with hexahydro-5-methyl-1,3-isobenzofurandione (9CI) (CA INDEX NAME)

CM 1

CRN 298702-51-9

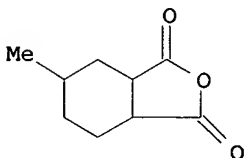
CMF C28 H38 O6



CM 2

CRN 19438-60-9

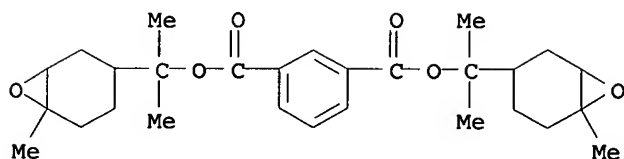
CMF C9 H12 O3



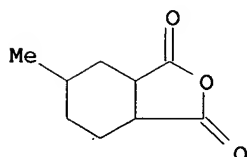
RN 298702-53-1 HCAPLUS

CN 1,3-Benzenedicarboxylic acid, bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] ester, polymer with hexahydro-5-methyl-1,3-isobenzofurandione and 7-oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate (9CI) (CA INDEX NAME)

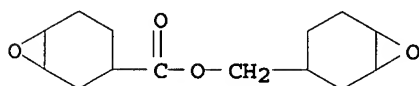
CM 1

CRN 298702-51-9
CMF C28 H38 O6

CM 2

CRN 19438-60-9
CMF C9 H12 O3

CM 3

CRN 2386-87-0
CMF C14 H20 O4

CC 37-6 (Plastics Manufacture and Processing)

Section cross-reference(s): 76

IT 298702-52-0P 298702-53-1P 429685-44-9P

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)

(preparation and crosslinking and controlled thermal degradation of diepoxy resin system as underfill for electronic packaging)

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 29 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2002:221231 HCAPLUS

DOCUMENT NUMBER: 136:248454

TITLE: No-flow reworkable epoxy underfill compositions for protecting, encapsulating, fabricating in flip-chip applications

INVENTOR(S): Wang, Lejun; Li, Haiying; Wong, Ching-ping
PATENT ASSIGNEE(S): USA

SOURCE: U.S. Pat. Appl. Publ., 28 pp., Cont.-in-part of U. S. Ser. No. 820,549.

DOCUMENT TYPE: CODEN: USXXCO
 LANGUAGE: Patent
 FAMILY ACC. NUM. COUNT: 3 English
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002035201	A1	20020321	US 2001-860081	2001 0517
US 6570029	B2	20030527	<--	
US 2002013420	A1	20020131	US 2001-820549	2001 0329
US 6498260	B2	20021224	<--	
PRIORITY APPLN. INFO.:			US 2000-193356P	P 2000 0329
			<--	
			US 2000-205590P	P 2000 0517
			<--	
			US 2001-820549	A2 2001 0329
			<--	

AB The encapsulant includes a cycloaliph. epoxide, an organic hardener, a curing accelerator, and a fluxing agent where the cycloaliph. epoxide includes a carbonate or carbamate group. The encapsulant can also include a filler, such as a SiO₂ filler.

IT 362513-25-5P
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (no-flow reworkable carbonate or carbamate group-containing epoxy underfills for flip-chip applications)

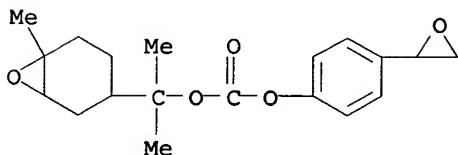
RN 362513-25-5 HCAPLUS

CN Carbonic acid, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl 4-oxiranylphenyl ester, polymer with hexahydro-5-methyl-1,3-isobenzofurandione (9CI) (CA INDEX NAME)

CM 1

CRN 362513-20-0

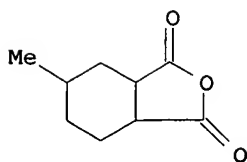
CMF C19 H24 O5



CM 2

CRN 19438-60-9

CMF C9 H12 O3



IC ICM C08G071-04
 INCL 524873000
 CC 37-6 (Plastics Manufacture and Processing)
 Section cross-reference(s): 38, 76
 IT 244760-72-3P 244760-75-6P 244760-81-4P 244760-84-7P
 244760-87-0P 244760-88-1P 307929-99-3P 307930-00-3P
 307930-01-4P 362513-25-5P 362513-26-6P
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical
 or engineered material use); PREP (Preparation); USES (Uses)
 (no-flow reworkable carbonate or carbamate group-containing epoxy
 underfills for flip-chip applications)

L22 ANSWER 30 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:935894 HCAPLUS

DOCUMENT NUMBER: 136:77253

TITLE: Positive type radiation-sensitive composition
 and process for producing pattern with the
 same

INVENTOR(S): Niwa, Hiroyuki; Tamura, Kazutaka; Senoo,
 Masahide

PATENT ASSIGNEE(S): Toray Industries, Inc., Japan

SOURCE: PCT Int. Appl., 57 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001098833	A1	20011227	WO 2001-JP315	2001 0119

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W: KR, SG, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
JP 2002006497	A2	20020109	JP 2000-192298	2000 0627

<--

EP 1229390	A1	20020807	EP 2001-901436	2001 0119
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R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR				
JP 2002082439	A2	20020322	JP 2001-176871	2001 0612

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US 2003003392	A1	20030102	US 2002-69136	2002 0222
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US 6919157	B2	20050719	JP 2000-187335	A
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2000
0622<--
JP 2000-192298 A2000
0627<--
WO 2001-JP315 W2001
0119

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AB The invention relates to a pos. type radiation-sensitive composition comprising (A) a compound in which an alkali-soluble group comprising a carboxyl group or phenolic hydroxyl group has been protected by an acid-eliminable group (a) which is any of the following (a1) to (a3), and (B) an acid generator which generates an acid upon irradiation with a radiation; and a method of forming a resist pattern using the composition (a1) The acid-eliminable group (a) is -CR₃, provided that at least two of the R's are aromatic rings. (The alkali-soluble group is a carboxyl group.). (a2) The acid-eliminable group (a) is -CR₃, provided that at least one of the R's is an aromatic ring having an electron-donating group. (a3) The acid-eliminable group (a) has an alkali-soluble group (a') or has an alkali-soluble group (a'') protected by an acid-eliminable group.

IT 383908-16-5

RL: PEP (Physical, engineering or chemical process); TEM
(Technical or engineered material use); PROC (Process); USES
(Uses)

(pos. type radiation-sensitive composition and process for producing pattern with the same)

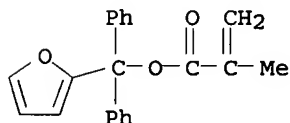
RN 383908-16-5 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-furanyldiphenylmethyl ester,
polymer with 4-(1-methylethenyl)phenol (9CI) (CA INDEX NAME)

CM 1

CRN 383908-15-4

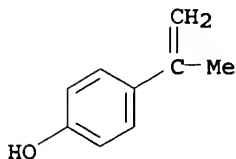
CMF C21 H18 O3



CM 2

CRN 4286-23-1

CMF C9 H10 O



IC ICM G03F007-039

ICS C08F020-12; C08F020-26; C08F012-24; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and
Other Reprographic Processes)

Section cross-reference(s): 38, 76

IT 383908-05-2 383908-11-0 383908-14-3 383908-16-5
 383908-19-8 383908-20-1 383908-22-3 383908-23-4
 383908-25-6 383908-27-8 383908-29-0 383908-31-4
 383908-33-6 383908-35-8 383908-37-0 383908-39-2
 383908-41-6 383908-43-8 383908-45-0 383908-48-3
 383908-50-7 383908-52-9 383908-54-1 383908-56-3
 383908-57-4 383908-59-6 383908-61-0 383908-83-6
 383908-84-7

RL: PEP (Physical, engineering or chemical process); TEM
 (Technical or engineered material use); PROC (Process); USES
 (Uses)
 (pos. type radiation-sensitive composition and process for producing
 pattern with the same)

REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS AVAILABLE
 IN THE RE FORMAT

L22 ANSWER 31 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:926207 HCAPLUS

DOCUMENT NUMBER: 136:402680

TITLE: Study of a controlled thermally degradable
 epoxy resin system for electronic packaging

AUTHOR(S): Li, Haiying; Wang, Lejun; Wong, C. P.

CORPORATE SOURCE: Packaging Research Center Georgia Institute of
 Technology, School of Materials Science and
 Engineering, Atlanta, GA, 30332, USA

SOURCE: Proceedings - Electronic Components &
 Technology Conference (2001), 51st,
 1356-1361

CODEN: PETCES

PUBLISHER: Institute of Electrical and Electronics
 Engineers

DOCUMENT TYPE: Journal

LANGUAGE: English

AB This paper reports the synthesis, formulation and
 characterizations of two new diepoxides, one contains secondary
 and the other contains tertiary ester linkages that are thermally
 degradable below 300°. The secondary and the tertiary
 ester diepoxides were synthesized in three and two steps, resp.
 Both compds. were characterized with NMR and FT-IR spectroscopies,
 and formulated into underfill materials with an anhydride as
 hardener and an imidazole as catalyst. A dual-epoxy system was
 also formulated containing the tertiary ester diepoxide and a
 conventional aliphatic diepoxide, ERL-4221E, with the same hardener
 and catalyst. The curing kinetics of the formulas was studied
 with differential scanning calorimetry (DSC). Thermal properties
 of cured samples were characterized with DSC, thermogravimetric
 anal. (TGA) and Thermomech. anal. (TMA). The dual-epoxy system
 showed a viscosity of 18.7, and 0.87P at 25° and
 100°, resp. The cured secondary, tertiary and dual-epoxy
 formulas showed decomposition temps. around 265°, 190°
 and 220°, glass transition temps. (Tg) around
 120°-140°, 110°-157° and
 140°-157°, and CTE (coefficient of thermal expansion) of
 70 ppm/°C, 72 ppm/°C and 64 ppm/°C below
 their Tg, resp. The shear strength of the cured dual-epoxy system
 decreased quickly upon being aged at 230°. The
 reworkability test showed that the removal from the board of a
 chip underfilled with this material was quite easy, and the
 residue on the board could be thoroughly removed with a mech.
 brush without obvious damage of the solder mask. The synthesized
 tertiary epoxide can be used as a reworkable underfill for
 flip-chip application.

IT 298702-52-0P, Bis[1-methyl-1-(6-methyl-7-
 oxabicyclo[4.1.0]hept-3-yl)ethyl] isophthalate-4-

methylhexahydrophthalic anhydride copolymer 298702-53-1P
 , Bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl]
 isophthalate-ERL 4221E-4-methylhexahydrophthalic anhydride
 copolymer

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical
 or engineered material use); PREP (Preparation); USES (Uses)
 (preparation and properties of controlled thermally degradable epoxy
 resin system for electronic packaging)

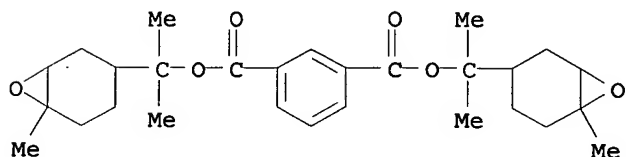
RN 298702-52-0 HCAPLUS

CN 1,3-Benzenedicarboxylic acid, bis[1-methyl-1-(6-methyl-7-
 oxabicyclo[4.1.0]hept-3-yl)ethyl] ester, polymer with
 hexahydro-5-methyl-1,3-isobenzofurandione (9CI) (CA INDEX NAME)

CM 1

CRN 298702-51-9

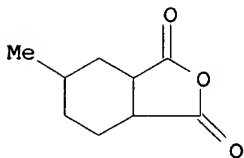
CMF C28 H38 O6



CM 2

CRN 19438-60-9

CMF C9 H12 O3



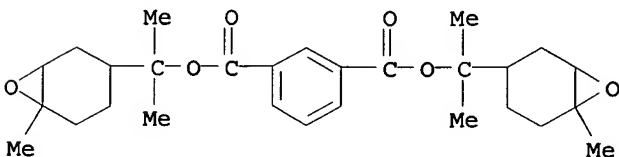
RN 298702-53-1 HCAPLUS

CN 1,3-Benzenedicarboxylic acid, bis[1-methyl-1-(6-methyl-7-
 oxabicyclo[4.1.0]hept-3-yl)ethyl] ester, polymer with
 hexahydro-5-methyl-1,3-isobenzofurandione and 7-
 oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-
 carboxylate (9CI) (CA INDEX NAME)

CM 1

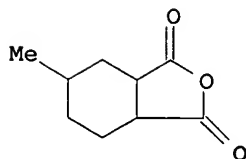
CRN 298702-51-9

CMF C28 H38 O6



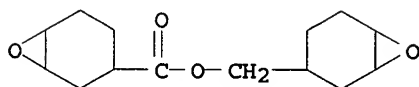
CM 2

CRN 19438-60-9
CMF C9 H12 O3



CM 3

CRN 2386-87-0
CMF C14 H20 O4



CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 37, 76

IT 298702-52-0P, Bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] isophthalate-4-methylhexahydrophthalic anhydride copolymer 298702-53-1P, Bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] isophthalate-ERL 4221E-4-methylhexahydrophthalic anhydride copolymer 429685-44-9P, Bis[1-(7-oxabicyclo[4.1.0]hept-3-yl)ethyl] isophthalate-4-methylhexahydrophthalic anhydride copolymer
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(preparation and properties of controlled thermally degradable epoxy resin system for electronic packaging)

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 32 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:851529 HCAPLUS

DOCUMENT NUMBER: 136:14026

TITLE: No-flow reworkable epoxy underfills for flip-chip applications

INVENTOR(S): Wang, Lejun; Wong, Ching-Ping; Li, Haiying

PATENT ASSIGNEE(S): Georgia Tech Research Corporation, USA

SOURCE: PCT Int. Appl., 50 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 3

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001088959	A2	20011122	WO 2001-US15843	20010517

<--

WO 2001088959 A3 20020328

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA,

CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB,
 GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP,
 KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN,
 MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK,
 SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM,
 AZ, BY, KG, KZ, MD, RU, TJ, TM
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE,
 CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL,
 PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR,
 NE, SN, TD, TG

US 2002013420 A1 20020131 US 2001-820549 2001
 0329

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US 6498260 B2 20021224
 AU 2001064625 A5 20011126 AU 2001-64625 2001
 0517

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PRIORITY APPLN. INFO.: US 2000-205590P P 2000
 0517

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US 2001-820549 A 2001
 0329

<--

US 2000-193356P P 2000
 0329

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WO 2001-US15843 W 2001
 0517

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AB A no-flow reworkable epoxy underfill is provided for use in an
 electronic packaged system which incorporates an integrated
 circuit, an organic printed wire board, and ≥ 1 eutectic solder
 joint formed there-between. An exemplary embodiment of the
 encapsulant includes: a cycloaliph. epoxide; an organic hardener; a
 curing accelerator; and a fluxing agent in which the cycloaliph.
 epoxide includes a carbonate or carbamate group. The encapsulant
 can also include a filler, such as a SiO₂ filler. A method is
 also provided for forming the aforementioned reworkable epoxy
 underfills.

IT 362513-25-5P

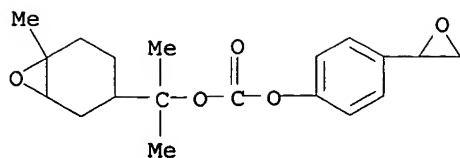
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical
 or engineered material use); PREP (Preparation); USES (Uses)
 (no-flow reworkable epoxy underfills for flip-chip
 applications)

RN 362513-25-5 HCAPLUS

CN Carbonic acid, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-
 yl)ethyl 4-oxiranylphenyl ester, polymer with hexahydro-5-methyl-
 1,3-isobenzofurandione (9CI) (CA INDEX NAME)

CM 1

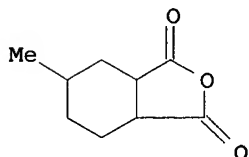
CRN 362513-20-0
 CMF C19 H24 O5



CM 2

CRN 19438-60-9

CMF C9 H12 O3



IC ICM H01L

CC 76-3 (Electric Phenomena)

Section cross-reference(s): 38

IT 244760-72-3P 244760-75-6P 244760-81-4P 244760-84-7P

244760-87-0P 244760-88-1P 307929-99-3P 307930-00-3P

307930-01-4P 362513-25-5P 362513-26-6P

RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(no-flow reworkable epoxy underfills for flip-chip applications)

L22 ANSWER 33 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:755208 HCAPLUS

DOCUMENT NUMBER: 136:70598

TITLE: Characterization of thermally re-workable
thermosets: materials for environmentally
friendly processing and reuse

AUTHOR(S): Chen, J.-S.; Ober, C. K.; Poliks, M. D.

CORPORATE SOURCE: Bard Hall, Department of Materials Science and
Engineering, Cornell University, Ithaca, NY,
14850, USA

SOURCE: Polymer (2001), Volume Date 2002,
43(1), 131-139

CODEN: POLMAG; ISSN: 0032-3861

PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB In recent years, several research groups have created re-workable thermoset systems. A prominent use of such materials is in microelectronics packaging areas to enable the repair or reprocessing of electronic components. A wider implication of such an application is that it may facilitate the future recycling or reuse of older computer systems. Recent studies indicate millions of computers are discarded each year due to obsolescence or other factors. The research presented here involves studies of thermosets incorporating a cycloaliph. epoxy monomer that contains a tertiary ester linkage. When part of a fully crosslinked network, the re-workable epoxy unit will disconnect the network under predetd. thermal conditions. We studied the chemical and thermo-mech. breakdown mechanisms of the monomer and resulting polymer networks as a function of their rework conditions. Via anal. chemical techniques, the materials were found to degrade in a

controlled fashion consistent with prior polyester degradation studies. Monitoring the change in glass transition temperature of the materials under rework conditions yielded both kinetic and mechanistic data of the degradation process, as well as providing insight into the materials' mech. strength.

IT 195065-79-3P 195065-81-7P

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(thermally re-workable thermosets as materials for environmentally friendly processing and reuse)

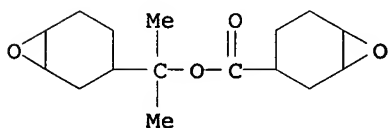
RN 195065-79-3 HCAPLUS

CN 7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 1-methyl-1-(7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with hexahydro-5-methyl-1,3-isobenzofurandione (9CI) (CA INDEX NAME)

CM 1

CRN 195065-78-2

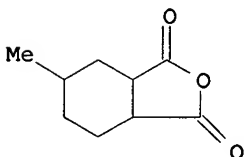
CMF C16 H24 O4



CM 2

CRN 19438-60-9

CMF C9 H12 O3



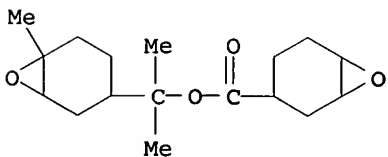
RN 195065-81-7 HCAPLUS

CN 7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with hexahydro-5-methyl-1,3-isobenzofurandione (9CI) (CA INDEX NAME)

CM 1

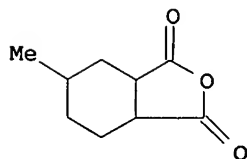
CRN 195065-80-6

CMF C17 H26 O4



CM 2

CRN 19438-60-9
CMF C9 H12 O3



CC 37-6 (Plastics Manufacture and Processing)
IT 195065-79-3P 195065-81-7P
RL: PEP (Physical, engineering or chemical process); PRP
(Properties); PYP (Physical process); SPN (Synthetic preparation);
PREP (Preparation); PROC (Process)
(thermally re-workable thermosets as materials for
environmentally friendly processing and reuse)
REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L22 ANSWER 34 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2001:730881 HCAPLUS
DOCUMENT NUMBER: 135:257990
TITLE: Thermally degradable epoxy underfills for
flip-chip applications
INVENTOR(S): Wang, Lejun; Wong, Ching-Ping; Li, Haiying
PATENT ASSIGNEE(S): Georgia Tech Research Corporation, USA
SOURCE: PCT Int. Appl., 48 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 2001072898	A1	20011004	WO 2001-US10095	2001 0329

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W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA,
CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB,
GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP,
KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN,
MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK,
SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM,
AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE,
CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL,
PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR,
NE, SN, TD, TG

AU 2001051096	A5	20011008	AU 2001-51096	2001 0329
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PRIORITY APPLN. INFO.: US 2000-193356P P
2000
0329

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WO 2001-US10095 W
2001
0329

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AB A reworkable epoxy underfill for use in electronic packaged system comprises a cycloaliph. epoxide, an organic hardener, and a curing accelerator, and optionally a filler, such as a silica filler. Thus, di-3,4-epoxycyclohexylmethyl carbonate/hexahydromethylphthalic anhydride 1/0.8 mol and imidazole 1% were mixed to give a resin, showing Tg 176°, storage modulus 2.6 GPa, and viscosity (25°) 0.24 Pa·s.

IT 362513-25-5P
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (thermally degradable epoxy underfills for flip-chip applications)

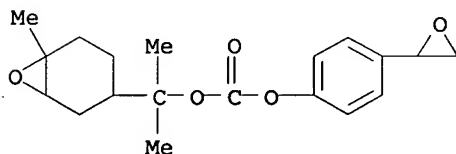
RN 362513-25-5 HCAPLUS

CN Carbonic acid, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl 4-oxiranylphenyl ester, polymer with hexahydro-5-methyl-1,3-isobenzofurandione (9CI) (CA INDEX NAME)

CM 1

CRN 362513-20-0

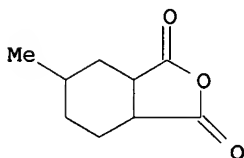
CMF C19 H24 O5



CM 2

CRN 19438-60-9

CMF C9 H12 O3



IC ICM C08L063-00
 ICS C08G059-02

CC 37-6 (Plastics Manufacture and Processing)

IT 307930-01-4P 362513-25-5P

RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (thermally degradable epoxy underfills for flip-chip applications)

REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 35 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:635653 HCAPLUS

DOCUMENT NUMBER: 135:218724

TITLE: Positive-working photoresist composition containing allylsilane-based resin

INVENTOR(S): Sato, Kenichiro

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 63 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001235865	A2	20010831	JP 2000-46129	2000 0223
TW 513621	B	20021211	TW 2001-90102179	2001 0202
US 2001041303	A1	20011115	US 2001-789823	2001 0222
US 6528229	B2	20030304	JP 2000-46129	2000 0223

PRIORITY APPLN. INFO.: A

GI



AB The photoresist composition comprises (A) a resin having repeating unit $\text{CH}_2\text{CH}(\text{CH}_2)_n\text{SiR}_1\text{R}_2\text{R}_3$ ($\text{R}_1\text{-R}_3$ = alkyl, haloalkyl, halo, alkoxy, trialkylsilyl, or trialkylsilyloxy; n = 0 or 1) and I (M = bond for linking 2 C atoms and forming an alicyclic structure which may have a substituent; R_{11} and R_{12} = H, cyano, halo, or (substituted) alkyl) and (B) a compound for generating an acid by irradiation of actinic ray or radiation. The composition provides resist pattern having minimized line width variation by SEM observation in semiconductor device fabrication.

IT 357400-47-6

RL: TEM (Technical or engineered material use); USES (Uses)
 (pos.-working photoresist composition containing allylsilane-based acid-decomposable resin)

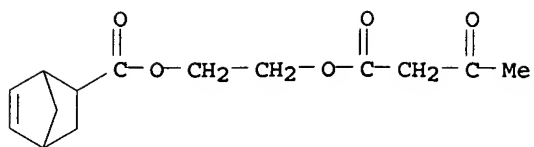
RN 357400-47-6 HCAPLUS

CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 2-(1,3-dioxobutoxy)ethyl ester, polymer with 2,5-furandione, 1,1,1,3,3,3-hexamethyl-2-(2-propenyl)-2-(trimethylsilyl)trisilane and 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl bicyclo[2.2.1]hept-5-ene-2-carboxylate (9CI) (CA INDEX NAME)

CM 1

CRN 357400-46-5

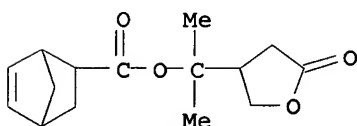
CMF C14 H18 O5



CM 2

CRN 357400-45-4

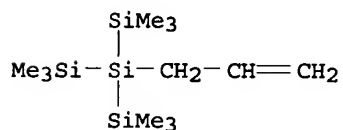
CMF C15 H20 O4



CM 3

CRN 136649-77-9

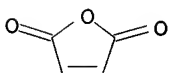
CMF C12 H32 Si4



CM 4

CRN 108-31-6

CMF C4 H2 O3



IC ICM G03F007-039

ICS C08F222-00; C08F222-06; C08F230-08; C08F232-08; C08K005-00;
C08L035-00; C08L035-02; C08L043-04; C08L045-00; H01L021-027CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and
Other Reprographic Processes)

Section cross-reference(s): 76

IT 357400-36-3 357400-38-5 357400-39-6 357400-40-9

357400-41-0 357400-42-1 357400-44-3 357400-47-6

RL: TEM (Technical or engineered material use); USES (Uses)

(pos.-working photoresist composition containing allylsilane-based
acid-decomposable resin)

L22 ANSWER 36 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:98663 HCAPLUS

DOCUMENT NUMBER: 134:170820

TITLE: Positive-working silicone-containing
photosensitive compositions

INVENTOR(S): Yasunami, Shoichiro

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 19 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001033974	A2	20010209	JP 1999-202179	1999 0715

PRIORITY APPLN. INFO.:

JP 1999-202179

1999
0715

GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT

AB The compns. contain (a) alkaline-soluble and water-insol. polymer comprising of I and/or II (X = COR, CH(OH)R, carboxyl; R = H, (un)substituted hydrocarbon; R1-5 = OH, (un)substituted (cyclo)alkyl, alkoxy, alkenyl, aralkyl, Ph; Y = alkyl, alkoxy, siloxyl, R0 = H, halogen, (un)substituted aliphatic or aromatic hydrocarbon; l, m, n, q = 0, pos. number; p = pos. number), (b) compds. generating acid on irradiation of active ray or radiant ray, (c) polymers containing acid-decomposable groups and showing increase of solubility to alkaline developer on reaction with acid, and (d) Si-containing nonpolymeric compound containing acid-decomposable groups and showing increase of solubility to alkaline developer on reaction with acid. Far UV photoresists with high sensitivity and resolution are obtained.

IT 280566-60-1

RL: TEM (Technical or engineered material use); USES (Uses)
 (pos.-working silicon-containing photoresists for micropattern formation in semiconductor device fabrication)

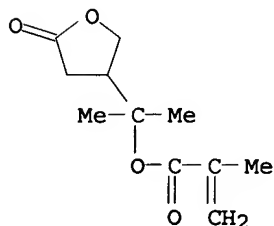
RN 280566-60-1 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl ester, polymer with 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 280566-59-8

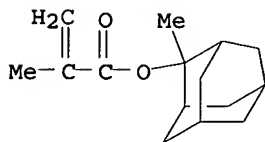
CMF C11 H16 O4



CM 2

CRN 177080-67-0

CMF C15 H22 O2



IC ICM G03F007-075

ICS C08L083-06; G03F007-039; G03F007-36

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 38

IT 51350-55-1D, Phenylsilsesquioxane, acetylated 157374-41-9D,

Phenylsilsesquioxane, acetylated 177080-68-1 196709-91-8,

4-Hydroxystyrene-4(1-tert-butoxyethoxy)styrene copolymer

199432-82-1 216308-45-1 279244-37-0 280566-60-1

288620-13-3 289706-85-0 325143-37-1 325143-38-2

325143-39-3 325143-40-6 325143-41-7

RL: TEM (Technical or engineered material use); USES (Uses)

(pos.-working silicon-containing photoresists for micropattern formation in semiconductor device fabrication)

L22 ANSWER 37 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2000:700418 HCAPLUS

DOCUMENT NUMBER: 133:362992

TITLE: Syntheses and characterizations of thermally reworkable epoxy resins II

AUTHOR(S): Wang, Lejun; Li, Haiying; Wong, C. P.

CORPORATE SOURCE: School of Materials Science and Engineering and Packaging Research Center, Georgia Institute of Technology, Atlanta, GA, 30332, USA

SOURCE: Journal of Polymer Science, Part A: Polymer Chemistry (2000), 38(20), 3771-3782
CODEN: JPACEC; ISSN: 0887-624X

PUBLISHER: John Wiley & Sons, Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Flip-chip technol. is a face-down attachment of the active side of the silicon device onto the substrate. It is the ultimate packaging solution to integrated circuit devices used in 21st century electronic systems to meet the requirements of small size, high performance, and low cost. Underfill technol. enhances the flip chip on board cycle fatigue life and thus dramatically extends the application of flip-chip technol. in electronics from high-end to cost-sensitive commodity products. Reworkable underfill is the key to addressing the non-reworkability of the underfill, so it is very important to electronic packaging. To meet the need for reworkable epoxy resins, four cycloaliph. epoxides containing thermally breakable carbonate linkages have been synthesized and characterized. These materials are shown to undergo curing reactions with cyclic anhydride similarly to a com. cycloaliph. diepoxide. Furthermore, these cured epoxides start to decompose at temps. lower than 350°, the decomposition temperature for the cured sample of the com. cycloaliph. diepoxide. Two formulations based on two carbonate-containing diepoxides start network breakdown around 220°, which is the targeted rework temperature. Moreover, these two formulations have similar properties, including the glass-transition temperature, coefficient of thermal expansion, storage

modulus, viscosity, and adhesion, compared to the standard com. diepoxide formulation. storage modulus. As such, these two formulations are potential candidates for a successful reworkable underfill.

IT 307930-02-5P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(syntheses and characterizations of thermally reworkable epoxy resins II)

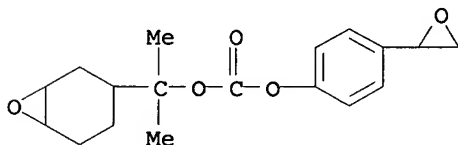
RN 307930-02-5 HCAPLUS

CN Carbonic acid, 1-methyl-1-(7-oxabicyclo[4.1.0]hept-3-yl)ethyl 4-oxiranylphenyl ester, polymer with hexahydro-5-methyl-1,3-isobenzofurandione (9CI) (CA INDEX NAME)

CM 1

CRN 307929-98-2

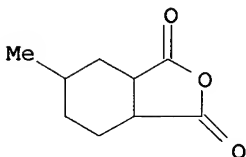
CMF C18 H22 O5



CM 2

CRN 19438-60-9

CMF C9 H12 O3



CC 35-2 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 38, 76

IT 307929-99-3P, Di-3,4-epoxycyclohexylmethyl Carbonate-4-methylhexahydrophthalic anhydride copolymer 307930-00-3P
307930-01-4P 307930-02-5P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(syntheses and characterizations of thermally reworkable epoxy resins II)

REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 38 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2000:688295 HCAPLUS

DOCUMENT NUMBER: 133:267620

TITLE: Reworkable thermosetting resin compositions for sealing semiconductors

INVENTOR(S): Torres-Filho, Afranio; Crane, Lawrence N.; Konarski, Mark M.; Szczepaniak, Zbigniew A.

PATENT ASSIGNEE(S): Loctite Corporation, USA

SOURCE: PCT Int. Appl., 41 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000056799	A1	20000928	WO 2000-US7452	2000 0322

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 W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
 RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

CA 2331790	AA	20000928	CA 2000-2331790	2000 0322
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EP 1090057	A1	20010411	EP 2000-916567	2000 0322
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 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO
 JP 2002540235 T2 20021126 JP 2000-606659

2000
0322

PRIORITY APPLN. INFO.:

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 US 1999-274943 A
 1999
0323

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 WO 2000-US7452 W
 2000
0322

OTHER SOURCE(S): MARPAT 133:267620

AB A thermosetting resin composition capable of sealing underfilling between a semiconductor device including a semiconductor chip mounted on a carrier substrate and a circuit board to which the semiconductor device is elec. connected, reaction products of which are capable of softening and losing their adhesiveness under exposure to temperature conditions in excess of those used to cure the composition, comprises: (a) an epoxy resin component, a portion of which comprises an epoxy compound having at least one thermally cleavable linkage; (b) optionally, an inorg. filler component; and (c) a curing agent component comprising a member selected from the group consisting of anhydride compds., amine compds., amide compds., imidazole compds., and combinations thereof. The thermosetting resin compns. are useful for mounting onto a circuit board semiconductor devices, such as chip size or chip scale packages ("CSPs"), ball grid arrays ("BGAs"), and the like, each of which having a semiconductor chip, such as large scale integration ("LSI"), on a carrier substrate. The compns. of this invention are reworkable when subjected to appropriate conditions.

IT 297765-36-7P
 RL: IMF (Industrial manufacture); POF (Polymer in formulation);

TEM (Technical or engineered material use); PREP (Preparation);
 USES (Uses)

(reworkable thermosetting resin compns. for sealing
 semiconductors)

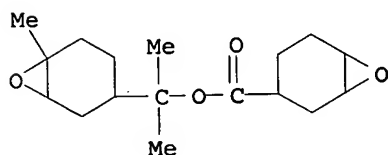
RN 297765-36-7 HCAPLUS

CN 7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 1-methyl-1-(6-methyl-
 7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with
 hexahydro-1,3-isobenzofurandione, hexahydromethyl-1,3-
 isobenzofurandione and 2,2'-[methylenebis(phenyleneoxymethylene)]b
 is[oxirane] (9CI) (CA INDEX NAME)

CM 1

CRN 195065-80-6

CMF C17 H26 O4

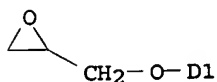
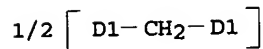


CM 2

CRN 39817-09-9

CMF C19 H20 O4

CCI IDS

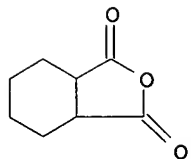


CM 3

CRN 25550-51-0

CMF C9 H12 O3

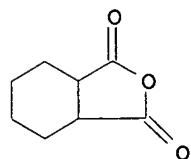
CCI IDS



D1-Me

CM 4

CRN 85-42-7
CMF C8 H10 O3



IC ICM C08G059-24
ICS H01L021-56

CC 37-6 (Plastics Manufacture and Processing)

Section cross-reference(s): 76

IT 297765-36-7P 297765-38-9P 297765-39-0P

RL: IMF (Industrial manufacture); POF (Polymer in formulation);

TEM (Technical or engineered material use); PREP (Preparation);

USES (Uses)

(reworkable thermosetting resin compns. for sealing
semiconductors)

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L22 ANSWER 39 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2000:686614 HCAPLUS

DOCUMENT NUMBER: 133:274251

TITLE: Positively-working photoresist composition for
far-ultraviolet ray photolithography

INVENTOR(S): Kodama, Kunihiro; Sato, Kenichiro; Aogo,
Toshiaki

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 62 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

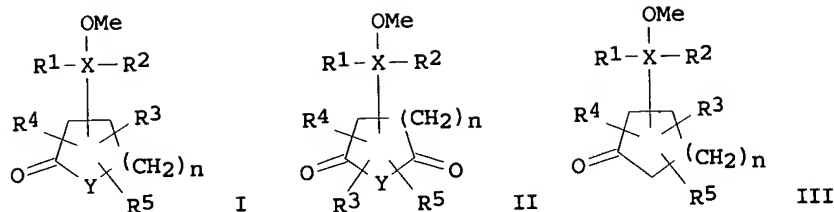
FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2000267287	A2	20000929	JP 1999-186809	1999 0630
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KR 2000011988	A	20000225	KR 1999-30510	1999

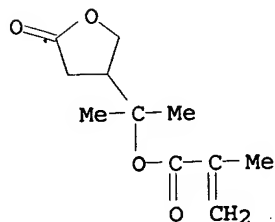
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US 6291130	B1	20010918	US 1999-361568	1999 0727
			<--	
US 6517991	B1	20030211	US 2000-606681	2000 0630
			<--	
US 2003044718	A1	20030306	US 2002-176067	2002 0621
			<--	
US 2004161697	A2	20040819		
US 6818377	B2	20041116		
PRIORITY APPLN. INFO.:			JP 1998-263392	A 1998 0917
			<--	
			JP 1999-6662	A 1999 0113
			<--	
			JP 1998-211137	A 1998 0727
			<--	
			JP 1999-186809	A 1999 0630
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			US 1999-361568	A3 1999 0727
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			US 2000-606681	A3 2000 0630
			<--	

GI

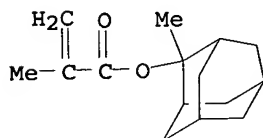


AB The composition contains a compound discharging acids under active ray or radiation irradiation and a polymer whose solubility in alkaline developer is enhanced because of decomposition of the polymer by the resulting acids. The polymer involves carboxyl-protecting alc. units I, II, and/or III [R1, R2 = H, (substituted) linear, branched, or cyclic alkyl; R1 and R2 may form single or polycyclic group which may contain O, S, N, ketone, ester, imide, or amide group; R3-R5 = H, (substituted) linear, branched, cyclic alkyl, alkoxy; 2 of R3-R5 may form single or polycyclic group as above; X = single bond, divalent group; X and R1 and/or R2 may form single or polycyclic group; Y = O, S, NH, N(OH), NR; R = alkyl; n = 1-3]. The far-UV-sensitive photoresist composition is suitable for semiconductor

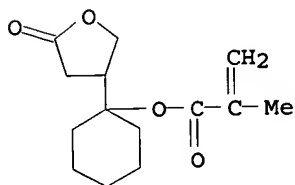
device fabrication, etc.
 IT 280566-60-1P 297156-25-3P 297156-27-5P
 297156-28-6P 297156-30-0P 297156-33-3P
 297156-35-5P 297156-39-9P
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (far UV-sensitive photoresist composition containing protected carboxy-substituted polymer)
 RN 280566-60-1 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl ester, polymer with 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)
 CM 1
 CRN 280566-59-8
 CMF C11 H16 O4



CM 2
 CRN 177080-67-0
 CMF C15 H22 O2

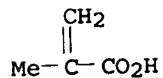


RN 297156-25-3 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, polymer with 1-(tetrahydro-5-oxo-3-furanyl)cyclohexyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)
 CM 1
 CRN 297156-24-2
 CMF C14 H20 O4



CM 2

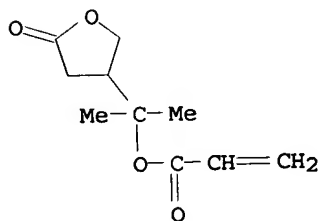
CRN 79-41-4
CMF C4 H6 O2



RN 297156-27-5 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 2-butyltricyclo[3.3.1.1^{3,7}]dec-2-yl ester, polymer with 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl 2-propenoate (9CI) (CA INDEX NAME)

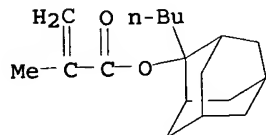
CM 1

CRN 297156-26-4
CMF C10 H14 O4



CM 2

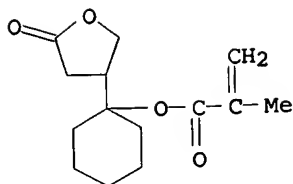
CRN 209982-54-7
CMF C18 H28 O2



RN 297156-28-6 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1-(tetrahydro-5-oxo-3-furanyl)cyclohexyl ester, polymer with (3R,3aS,6R,7R,8aS)-octahydro-3,6,8,8-tetramethyl-1H-3a,7-methanoazulen-6-yl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 297156-24-2
CMF C14 H20 O4

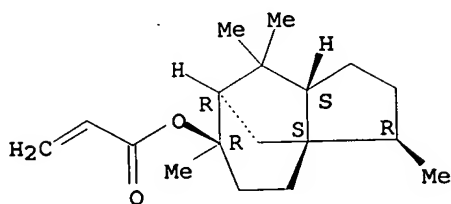


CM 2

CRN 132603-00-0

CMF C18 H28 O2

Absolute stereochemistry.



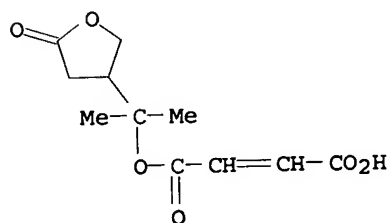
RN 297156-30-0 HCAPLUS

CN 2-Butenedioic acid, mono[1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl] ester, polymer with 1,7,7-trimethylbicyclo[2.2.1]hept-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 297156-29-7

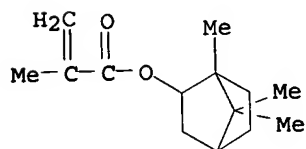
CMF C11 H14 O6



CM 2

CRN 16868-12-5

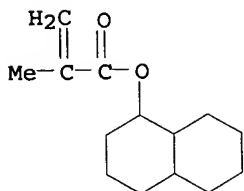
CMF C14 H22 O2



RN 297156-33-3 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, decahydro-1-naphthalenyl ester,
 polymer with 1-methyl-1-(tetrahydro-2,5-dioxo-3-furanyl)ethyl
 2-propenoate (9CI) (CA INDEX NAME)

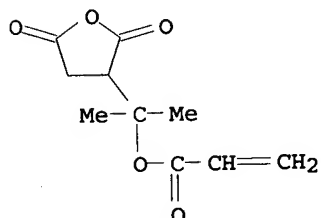
CM 1

CRN 297156-32-2
 CMF C14 H22 O2



CM 2

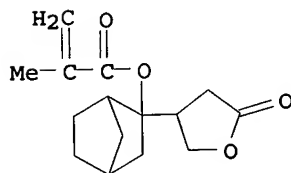
CRN 297156-31-1
 CMF C10 H12 O5



RN 297156-35-5 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, 1,1-dimethylethyl ester, polymer with
 2-(tetrahydro-5-oxo-3-furanyl)bicyclo[2.2.1]hept-2-yl
 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

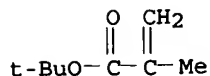
CM 1

CRN 297156-34-4
 CMF C15 H20 O4



CM 2

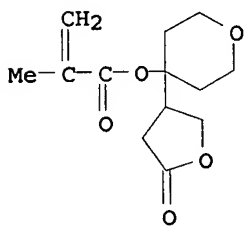
CRN 585-07-9
 CMF C8 H14 O2



RN 297156-39-9 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, polymer with 1,1-dimethylethyl
 2-methyl-2-propenoate and tetrahydro-4-(tetrahydro-5-oxo-3-
 furanyl)-2H-pyran-4-yl 2-methyl-2-propenoate (9CI) (CA INDEX
 NAME)

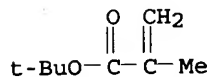
CM 1

CRN 297156-38-8
 CMF C13 H18 O5



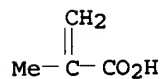
CM 2

CRN 585-07-9
 CMF C8 H14 O2



CM 3

CRN 79-41-4
 CMF C4 H6 O2



IC ICM G03F007-039
 ICS H01L021-027; C08F020-26
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and
 Other Reprographic Processes)
 Section cross-reference(s): 76
 IT 280566-60-1P 288303-55-9P 297156-25-3P
 297156-27-5P 297156-28-6P 297156-30-0P
 297156-33-3P 297156-35-5P 297156-37-7P
 297156-39-9P 297156-40-2P 297156-42-4P 297156-44-6P
 297156-46-8P 297156-48-0P 297156-51-5P 297156-52-6P
 297156-53-7P 297156-55-9P 297156-57-1P 297156-58-2P
 297156-59-3P
 RL: IMF (Industrial manufacture); TEM (Technical or engineered
 material use); PREP (Preparation); USES (Uses)

(far UV-sensitive photoresist composition containing protected carboxy-substituted polymer)

L22 ANSWER 40 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2000:594240 HCAPLUS

DOCUMENT NUMBER: 133:297079

TITLE: Reworkable thermosets: enabling disassembly of microelectronic components

AUTHOR(S): Chen, J. S.; Ober, C. K.; Poliks, M. D.

CORPORATE SOURCE: Department of Materials Science and Engineering, Cornell University, Ithaca, NY, 14853, USA

SOURCE: Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (2000), 41(2), 1842-1843

CODEN: ACPPAY; ISSN: 0032-3934

PUBLISHER: American Chemical Society, Division of Polymer Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The breakdown mechanism of the monomer and networks from α -Terp epoxy resin (1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester of 7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid) is studied. The resin cleaves in a manner that enables reworkability in fully cured thermoset networks that contain it. The relationship between glass temperature and thermal treatment and the application in the microelectronics are also discussed.

IT 195065-81-7

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(breakdown mechanism of reworkable epoxy resin thermosets and enabling disassembly of microelectronic components)

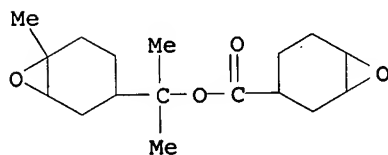
RN 195065-81-7 HCAPLUS

CN 7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with hexahydro-5-methyl-1,3-isobenzofurandione (9CI) (CA INDEX NAME)

CM 1

CRN 195065-80-6

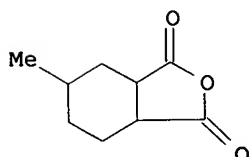
CMF C17 H26 O4



CM 2

CRN 19438-60-9

CMF C9 H12 O3



CC 37-6 (Plastics Manufacture and Processing)
Section cross-reference(s): 76

IT 195065-81-7
RL: DEV (Device component use); PEP (Physical, engineering or
chemical process); PROC (Process); USES (Uses)
(breakdown mechanism of reworkable epoxy resin thermosets and
enabling disassembly of microelectronic components)

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L22 ANSWER 41 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2000:566232 HCAPLUS

DOCUMENT NUMBER: 133:267406

TITLE: Synthesis and characterizations of a
controlled thermally degradable epoxy resin
system for electronic packaging

AUTHOR(S): Li, Haiying; Wang, Lejun; Jacob, Karl; Wong,
C. P.

CORPORATE SOURCE: School of Textile & Fiber Engineering, Georgia
Institute of Technology, Atlanta, GA, 30332,
USA

SOURCE: Polymeric Materials Science and Engineering (
2000), 83, 563-565

CODEN: PMSDGG; ISSN: 0743-0515

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A new diepoxide containing tertiary ester linkage and a benzene ring
was prepared and characterized with NMR and FTIR spectroscopies.
This epoxy compound existed as a liquid at ambient temperature. This
diepoxide and a dual-epoxy system composed with this diepoxide and
another diepoxide were formulated and cured with an anhydride as
hardener and imidazole as catalyst. The curing properties of this
diepoxide and its dual-epoxy system were studied with DSC.
Thermal properties of the cured resins of this diepoxide and its
dual-epoxy system were characterized with DSC, TGA, and thermal
mech. anal. The thermoset of the diepoxide showed a decomposition
temperature around 200° and a glass temperature around 110-157°.
The coefficient of thermal expansion (CTE) of the cured diepoxide resin
was 72 ppm/°C. The curing formulated dual-epoxy system
showed a viscosity of 18.7 P at room temperature and the cured resin of
the dual-epoxy system showed a decomposition temperature around 220°
and a glass temp., 140-157°. The CTE of the cured
dual-epoxy system was 64 ppm/°C.

IT 298702-52-0P 298702-53-1P

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical
or engineered material use); PREP (Preparation); USES (Uses)
(preparation and characterization of)

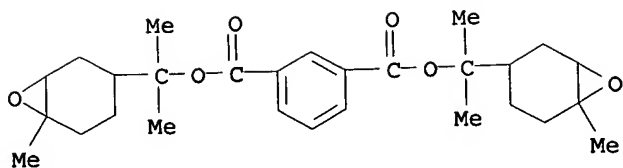
RN 298702-52-0 HCAPLUS

CN 1,3-Benzenedicarboxylic acid, bis[1-methyl-1-(6-methyl-7-
oxabicyclo[4.1.0]hept-3-yl)ethyl] ester, polymer with
hexahydro-5-methyl-1,3-isobenzofurandione (9CI) (CA INDEX NAME)

CM 1

CRN 298702-51-9

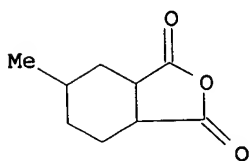
CMF C28 H38 O6



CM 2

CRN 19438-60-9

CMF C9 H12 O3

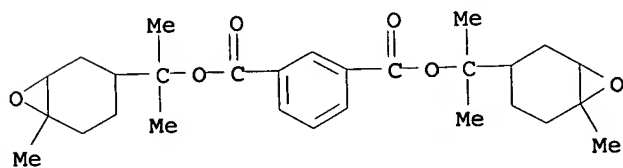


RN 298702-53-1 HCAPLUS
 CN 1,3-Benzenedicarboxylic acid, bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] ester, polymer with hexahydro-5-methyl-1,3-isobenzofurandione and 7-oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate (9CI) (CA INDEX NAME)

CM 1

CRN 298702-51-9

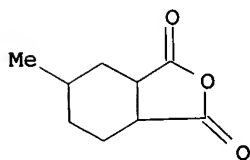
CMF C28 H38 O6



CM 2

CRN 19438-60-9

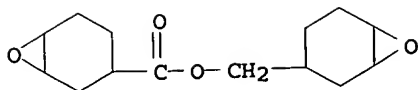
CMF C9 H12 O3



CM 3

CRN 2386-87-0

CMF C14 H20 O4



CC 37-3 (Plastics Manufacture and Processing)

Section cross-reference(s): 38

IT 298702-52-0P 298702-53-1P

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (preparation and characterization of)

REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 42 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2000:474297 HCAPLUS

DOCUMENT NUMBER: 133:96798

TITLE: Pattern formation using positive-working photoresist

INVENTOR(S): Sato, Kenichiro; Nakao, Hajime; Kawabe, Yasumasa

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 32 pp. CODEN: JKXXAF

DOCUMENT TYPE: Patent

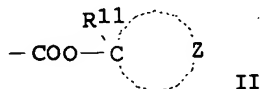
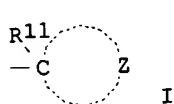
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000194135	A2	20000714	JP 1998-371210	1998 1225
<--				
PRIORITY APPLN. INFO.:			JP 1998-371210	1998 1225
<--				

GI



AB The title process comprises the steps of (i) coating, on a substrate, a pos.-working photoresist composition for far UV ray exposure, containing (a) a compound which generates an acid by irradiation with activating ray or radiation and (b) a resin which contains alkali-soluble groups protected with ≥ 1 of the groups having alicyclic hydrocarbon structures I, CR12R13R14, CH(OR15)R16, CR19R21CR17:CR18R20, CR22R25CHR23COR24, and II (R11 = Me, Et, Pr, iso-Pr, Bu, iso-Bu, sec-Bu; Z = atoms required to form an alicyclic hydrocarbon group along with the C atom; R12-16 = C1-4 straight-chain or branched alkyl or alicyclic hydrocarbon, ≥ 1 of R12-14 and either R15 or R16 are alicyclic hydrocarbons; R17-21 = H, C1-4 straight-chain or branched alkyl or alicyclic hydrocarbon, ≥ 1 of R17-21 is an alicyclic

hydrocarbon, either R19 or R21 is a C1-4 straight-chain or branched alkyl or alicyclic hydrocarbon; R22-25 = C1-4 straight-chain or branched alkyl or alicyclic hydrocarbon, ≥ 1 of R22-25 is an alicyclic hydrocarbon) and is cleaved by the action of acid to increase the solubility to alkali, (ii) patternwise exposing the coating to activating ray or radiation, and (iii) developing the exposed coating with an aqueous organic alkali solution in the presence of a surfactant. High resolution resist patterns showing improved coarse-dense dependence are formed by using far UV rays, especially, ArF excimer laser beams.

IT 280566-60-1P

RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(photoresist composition containing acid generator and polymer with alicyclic protective group)

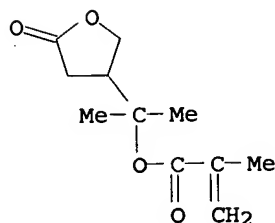
RN 280566-60-1 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl ester, polymer with 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 280566-59-8

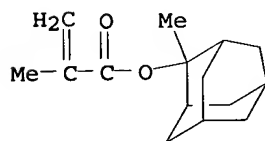
CMF C11 H16 O4



CM 2

CRN 177080-67-0

CMF C15 H22 O2



IC ICM G03F007-039

ICS G03F007-32; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 38

IT 177080-68-1P 181531-13-5P 195000-67-0P 195000-69-2P

258341-99-0P 280566-51-0P 280566-53-2P 280566-55-4P

280566-56-5P 280566-60-1P

RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(photoresist composition containing acid generator and polymer with alicyclic protective group)

L22 ANSWER 43 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1999:571842 HCAPLUS
 DOCUMENT NUMBER: 131:200774
 TITLE: Compounds with substituted cyclic hydrocarbon moieties linked by secondary or tertiary oxycarbonyl-containing moiety for reworkable cured thermosets
 INVENTOR(S): Ober, Christopher K.; Koerner, Hilmar
 PATENT ASSIGNEE(S): Cornell Research Foundation, Inc., USA
 SOURCE: U.S., 21 pp.
 CODEN: USXXAM
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5948922	A	19990907	US 1997-802905	1997 0220
US 6197122	B1	20010306	US 1998-177363	1998 1023
US 5973033	A	19991026	US 1998-178557	1998 1026

PRIORITY APPLN. INFO.: US 1997-802905 A3
 1997
0220

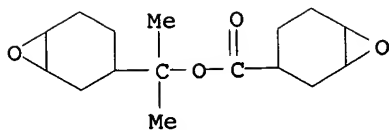
AB Title compds. containing two cyclic hydrocarbon moieties which are substituted to provide crosslinking functionality and linked to each other by secondary or tertiary oxycarbonyl-containing moiety are basis for compns. which are cured to provide cured thermosets for encapsulation and underfill for electronic components that are thermally decomposable to allow repair, replacement, recovery or recycling of operative electronic components from assemblies that are inoperative. Thus a curable composition comprising a compound prepared by reacting 3-cyclohexenecarboxylic acid chloride with (1-methyl-1-hydroxy)ethyl-3-cyclohexene, followed by epoxidizing the product with dimethyldioxirane 100, cis-1,2-cyclohexanecarboxylic anhydride 87, N,N-dimethylbenzylamine catalyst 1.5, and ethylene glycol initiator 1.5 parts was cured at 160° to give a cured thermoset, showing thermal decomposition temperature of ≤350°.

IT 240493-37-2P 240493-40-7P
 RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (preparation of compds. with substituted cyclic hydrocarbon moieties linked by secondary or tertiary oxycarbonyl-containing moiety for reworkable cured thermosets)

RN 240493-37-2 HCAPLUS
 CN 7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 1-methyl-1-(7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with rel-(3aR,7aS)-hexahydro-1,3-isobenzofurandione (9CI) (CA INDEX NAME)

CM 1

CRN 195065-78-2
 CMF C16 H24 O4

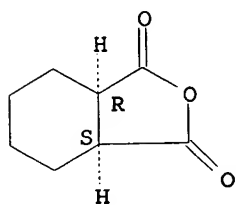


CM 2

CRN 13149-00-3

CMF C8 H10 O3

Relative stereochemistry.



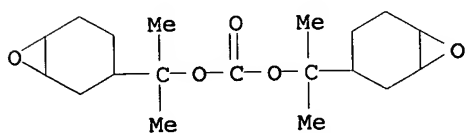
RN 240493-40-7 HCAPLUS

CN 7-Oxabicyclo[4.1.0]heptane-3-methanol, α,α -dimethyl-,
carbonate (2:1), polymer with rel-(3aR,7aS)-hexahydro-1,3-
isobenzofurandione (9CI) (CA INDEX NAME)

CM 1

CRN 240493-33-8

CMF C19 H30 O5

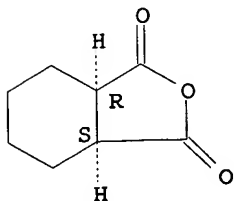


CM 2

CRN 13149-00-3

CMF C8 H10 O3

Relative stereochemistry.



IC ICM C07D303-00

INCL 549547000

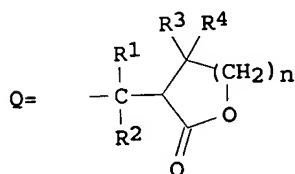
CC 37-2 (Plastics Manufacture and Processing)

Section cross-reference(s): 38, 76
 IT 240493-37-2P 240493-38-3P 240493-40-7P
 240493-41-8P 240493-42-9P 240493-43-0P 240493-44-1P
 240803-80-9P
 RL: IMF (Industrial manufacture); POF (Polymer in formulation);
 PRP (Properties); TEM (Technical or engineered material use); PREP
 (Preparation); USES (Uses)
 (preparation of compds. with substituted cyclic hydrocarbon moieties
 linked by secondary or tertiary oxycarbonyl-containing moiety for
 reworkable cured thermosets)
 REFERENCE COUNT: 34 THERE ARE 34 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS AVAILABLE
 IN THE RE FORMAT

L22 ANSWER 44 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1999:519010 HCAPLUS
 DOCUMENT NUMBER: 131:191866
 TITLE: Radiation-sensitive resin composition for
 chemically amplified photoresist
 INVENTOR(S): Suwa, Mitsufumi; Iwasawa, Haruo; Yamamoto,
 Masafumi; Kajita, Toru
 PATENT ASSIGNEE(S): JSR Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 23 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11223950	A2	19990817	JP 1998-37944	1998 0205
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PRIORITY APPLN. INFO.:			JP 1998-37944	1998 0205
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GI



AB The composition comprises (A) an alkali insol. or slightly alkali soluble resin having a lactone ring-containing group Q (R1-4 = H, C1-6 linear or branched alkyl, 5- to 8-membered cyclic alkyl; R1 and R2 or R3 and R4 may form 5- to 8-membered cyclic alkyl; n = 1-4) which releases by acids, and when the group itself and/or the lactone ring releases, the resin becomes alkali soluble and (B) a radiation-sensitive acid generator. The composition has high transparency and resolution to radiation, and is especially useful for manufacturing semiconductor devices.

IT 239784-46-4P 239784-47-5P 239784-48-6P
 239784-81-7P
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(radiation-sensitive composition containing resin having acid-releasable group with lactone ring for chemical amplified photoresist)

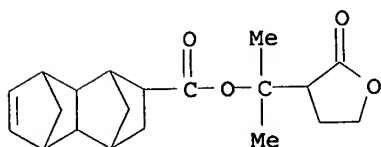
RN 239784-46-4 HCAPLUS

CN 1,4:5,8-Dimethanonaphthalene-2-carboxylic acid,
1,2,3,4,4a,5,8,8a-octahydro-, 1-methyl-1-(tetrahydro-2-oxo-3-furanyl)ethyl ester, polymer with 2,5-furandione (9CI) (CA INDEX NAME)

CM 1

CRN 239784-42-0

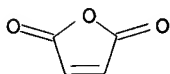
CMF C20 H26 O4



CM 2

CRN 108-31-6

CMF C4 H2 O3



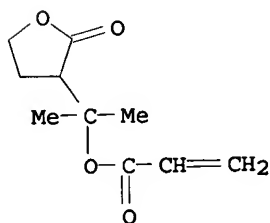
RN 239784-47-5 HCAPLUS

CN 2-Propenoic acid, 1-methyl-1-(tetrahydro-2-oxo-3-furanyl)ethyl ester, polymer with tricyclo[3.3.1.1^{3,7}]dec-1-yl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 239784-43-1

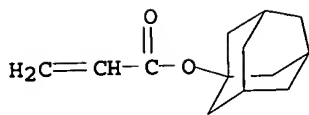
CMF C10 H14 O4



CM 2

CRN 121601-93-2

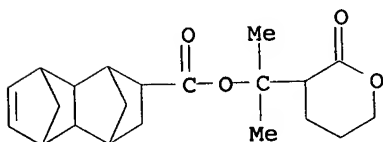
CMF C13 H18 O2



RN 239784-48-6 HCAPLUS
 CN 1,4:5,8-Dimethanonaphthalene-2-carboxylic acid,
 1,2,3,4,4a,5,8,8a-octahydro-, 1-methyl-1-(tetrahydro-2-oxo-2H-
 pyran-3-yl)ethyl ester, polymer with 2,5-furandione (9CI) (CA
 INDEX NAME)

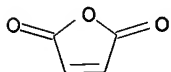
CM 1

CRN 239784-44-2
 CMF C21 H28 O4



CM 2

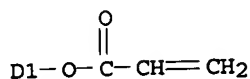
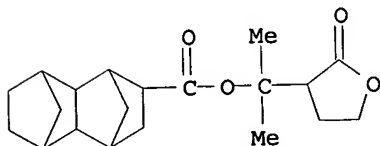
CRN 108-31-6
 CMF C4 H2 O3



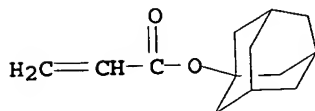
RN 239784-81-7 HCAPLUS
 CN 1,4:5,8-Dimethanonaphthalene-2-carboxylic acid, decahydro-6(or
 7)-[(1-oxo-2-propenyl)oxy]-, 1-methyl-1-(tetrahydro-2-oxo-3-
 furanyl)ethyl ester, polymer with tricyclo[3.3.1.1.3,7]dec-1-yl
 2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 239784-79-3
 CMF C23 H30 O6
 CCI IDS



CM 2

CRN 121601-93-2
CMF C13 H18 O2

IC ICM G03F007-039
ICS H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 38
IT 239784-46-4P 239784-47-5P 239784-48-6P
239784-49-7P 239784-81-7P 239784-82-8P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(radiation-sensitive composition containing resin having acid-releasable group with lactone ring for chemical amplified photoresist)

122 ANSWER 45 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1999:56806 HCAPLUS
DOCUMENT NUMBER: 130:160673
TITLE: Positive-working photoresist with high transparency to ArF excimer laser and high resolution
INVENTOR(S): Haneda, Hideo; Sato, Kazushi; Komano, Hiroshi
PATENT ASSIGNEE(S): Tokyo Ohka Kogyo Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11015162	A2	19990122	JP 1997-171947	1997 0627
US 6087063	A	20000711	US 1998-102622	1998 0623
US 6225476	B1	20010501	US 2000-542952	2000 0404
JP 2004231971	A2	20040819	JP 2004-100511	2004 0330
PRIORITY APPLN. INFO.:			JP 1997-171947	A 1997 0627
			US 1998-102622	A3

1998
0623

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AB The photoresist comprises (A) an acrylic resin
[CH₂CHR₁(CO₂CR₂R₃R₄)] (R₁ = H, Me; R₂-3 = lower alkyl; R₄ =
residue of a lactone, a ketone, or an ester) whose alkali solubility is
changed by acids and (B) an acid generator releasing acids by
radiation. The photoresist shows good affinity to alkalis and is
suited for paddle development.

IT 220196-44-1P 220196-45-2P 220196-52-1P

RL: PNU (Preparation, unclassified); TEM (Technical or engineered
material use); PREP (Preparation); USES (Uses)
(pos. photoresist containing lactone-, ketone-, or ester-branched
acrylic resin and showing good transparency to excimer laser)

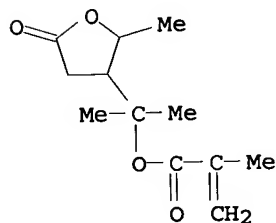
RN 220196-44-1 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(tetrahydro-2-methyl-5-oxo-
3-furanyl)ethyl ester, polymer with tetrahydro-4,4-dimethyl-2-oxo-
3-furanyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 220196-43-0

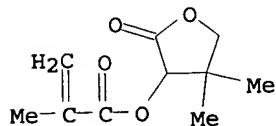
CMF C12 H18 O4



CM 2

CRN 156938-13-5

CMF C10 H14 O4



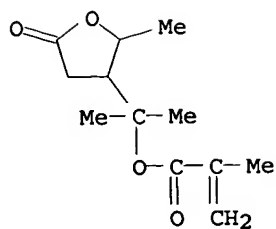
RN 220196-45-2 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(tetrahydro-2-methyl-5-oxo-
3-furanyl)ethyl ester, polymer with 2-
methyltricyclo[3.3.1.1.3,7]dec-2-yl 2-methyl-2-propenoate (9CI)
(CA INDEX NAME)

CM 1

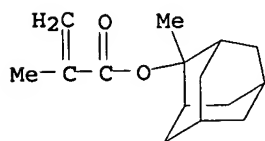
CRN 220196-43-0

CMF C12 H18 O4



CM 2

CRN 177080-67-0
CMF C15 H22 O2

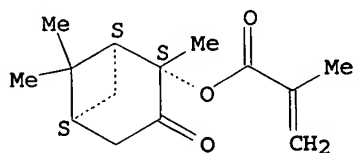


RN 220196-52-1 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(tetrahydro-2-methyl-5-oxo-3-furanyl)ethyl ester, polymer with rel-(1R,2R,5R)-2,6,6-trimethyl-3-oxobicyclo[3.1.1]hept-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

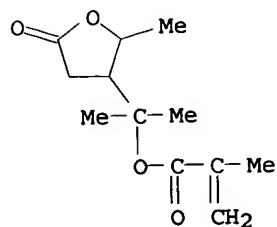
CRN 220196-50-9
CMF C14 H20 O3

Relative stereochemistry.



CM 2

CRN 220196-43-0
CMF C12 H18 O4



IC ICM G03F007-039
ICS G03F007-004; G03F007-033; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and
Other Reprographic Processes)
Section cross-reference(s): 38

IT 220196-41-8P 220196-42-9P 220196-44-1P
220196-45-2P 220196-48-5P 220196-49-6P 220196-51-0P
220196-52-1P
RL: PNU (Preparation, unclassified); TEM (Technical or engineered
material use); PREP (Preparation); USES (Uses)
(pos. photoresist containing lactone-, ketone-, or ester-branched
acrylic resin and showing good transparency to excimer laser)

L22 ANSWER 46 OF 46 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1997:579415 HCAPLUS

DOCUMENT NUMBER: 127:221339

TITLE: Design and characterization of a new
reworkable epoxy using solvent free, thermally
induced network breakdown

AUTHOR(S): Yang, Shu; Chen, Jir-Shyr; Korner, Hilmar;
Breiner, Thomas; Ober, Christopher K.; Poliks,
Mark D.

CORPORATE SOURCE: Department of Materials Science and
Engineering, Cornell University, Ithaca, NY,
14853-1501, USA

SOURCE: Polymer Preprints (American Chemical Society,
Division of Polymer Chemistry) (1997
, 38(2), 440-441
CODEN: ACPPAY; ISSN: 0032-3934

PUBLISHER: American Chemical Society, Division of Polymer
Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Epoxy resins have been widely used in many applications, but the
very robustness of the epoxy network after curing may be a marked
disadvantage in some cases. To achieve the feature of rework, or
controlled network breakdown, a series of new cycloaliph. epoxies
were synthesized which have either secondary or tertiary ester
bonds between crosslink sites. These ester bonds can be cleaved
if heated to a specific temperature, chosen to be above the processing
and cure temperature. Thermal anal. data shows that the anhydride-cured
epoxies with tertiary ester bonds can decompose at
.apprx.220°, while those with primary ester links decompose
at .apprx.340° at a heating rate of 10°/min.
Dynamic mech. anal. revealed that these new thermosets retain a
modulus comparable to that of the crosslinked com. epoxy ERL 4221.

IT 195065-79-3P 195065-81-7P
RL: PRP (Properties); SPN (Synthetic preparation); PREP
(Preparation)
(design and characterization of reworkable epoxy resins using
solvent-free thermally induced network breakdown)

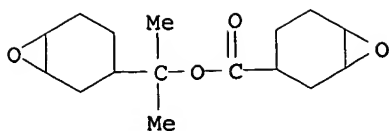
RN 195065-79-3 HCAPLUS

CN 7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 1-methyl-1-(7-
oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with
hexahydro-5-methyl-1,3-isobenzofurandione (9CI) (CA INDEX NAME)

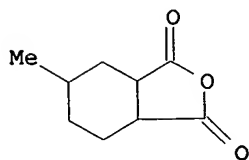
CM 1

CRN 195065-78-2

CMF C16 H24 O4

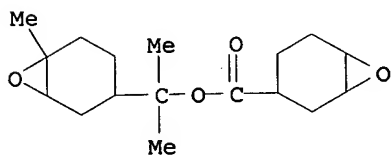


CM 2

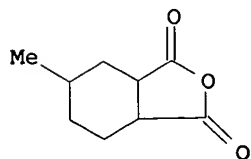
CRN 19438-60-9
CMF C9 H12 O3

RN 195065-81-7 HCAPLUS
CN 7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with hexahydro-5-methyl-1,3-isobenzofurandione (9CI) (CA INDEX NAME)

CM 1

CRN 195065-80-6
CMF C17 H26 O4

CM 2

CRN 19438-60-9
CMF C9 H12 O3

CC 37-3 (Plastics Manufacture and Processing)
IT 195065-77-1P 195065-79-3P 195065-81-7P
RL: PRP (Properties); SPN (Synthetic preparation); PREP
(Preparation)
(design and characterization of reworkable epoxy resins using solvent-free thermally induced network breakdown)

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